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A CONTRIBUTION TO THE STUDY OF INFANTILE MORTALITY.*

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ACCORDING to Dr. Newman, to whose book on infant mortality I am greatly indebted for many of the figures quoted in this paper, the general death-rate is declining, but the infant mortality-rate is not doing so, and 120,000, or one quarter of the total deaths in England and Wales, occur under the age of one year.

In 1839-44 infant deaths in London formed 20 per cent. of all deaths, and 30 years later 25 per cent. Practically we can say that out of 100,000 infants born, 17,139 will not live to one year of age, and 25,000 will not live to 5 years. So 120,000 lives are lost annually in England and Wales under the age of one year.

Johnson's figures are that while the death-rate for England and Wales for 1906 was 15.4, the infant death-rate, *i.e.* that in babies under one year, was 132—that is, one in every eight children born in this country in 1906 died before it was one year old.

Whilst the general death-rate is declining the infant death-rate is not doing so, and at the same time the birth-rate is decreasing.

Further, if we examine the ages at which infants die, and split up the first year of life into four periods of three months each, we

* 'The Medical Chronicle,' April, 1910.

find the striking fact that the first trimester is by far the most fatal. Thus in 1904, of 137,882 infants dying, 49 per cent. died in the first trimester, 21 per cent. in the second, and 30 per cent. in the third and fourth periods.

Taking the records of the deaths at the Manchester Children's Hospital Dispensary during the last 30 years, 34·5 per cent. died in the first two trimesters, 50·59 per cent. in the next six trimesters, or 18·86 per two trimesters.

It must be noted here that a great many of the deaths in the first trimester do not come on our records, because they occur before the child is fit to be brought to a dispensary.

This mortality in the first three months is increasing with the progress of our civilisation, and is greatest in our large towns, and especially in districts where there is much employment of women out of the home.

The infant mortality-rate of the second trimester is stationary, however, showing that the tendency is for infants to die earlier and earlier. This is in Newman's opinion due to increased immaturity, and by this he means the birth of a larger number of immature infants, or infants who, from various causes acting on the mother or themselves, are little fitted to live an independent existence under the conditions in which they find themselves.

Another fact that should be noted is that the death-rate amongst illegitimate children is twice, or more than twice, as great as that amongst legitimate children, and that this greater infant mortality in illegitimate children is more marked in urban as compared with rural districts.

DISTRIBUTION.

A study of the distribution of infant mortality shows that this has remained much the same for the last 50 years, and that some parts of the country, including Lancashire, have much higher rates than others. In 1901-5 Wiltshire had a rate of 91 and Lancashire one of 161.

The high rate goes with the densely populated and manufacturing districts, though density alone has not a great effect. In Newman's comparison between three rural counties and three selected towns (1) the characteristics common to both were that the infant mortality was highest during the first day and fell enormously during the second month; (2) the differences between the two were that the aggregate mortality in the towns is twice as high as it is in the

counties, and that the town rates are most in excess of the county rates in the later months of the year. When the greater prevalence of infectious diseases, including epidemic diarrhœa in the towns, is considered, these differences are to some extent, but not altogether, explained. Newman expresses himself as follows: "All diseases of infancy are heavier in towns than in counties; but immaturity is twice as fatal, and epidemic diarrhœa seven times as fatal in the towns."

Therefore, though immaturity does go with urbanisation and is the cause of more deaths in towns than in the country districts, the main effect of density of population on infantile mortality is through the greater effect of epidemic disease and especially epidemic diarrhœa.

CAUSES.

(1) *Ante-Natal Influences.*

In considering ante-natal conditions we must take into account factors acting on the parents' germ-plasm before conception and on the mother and embryo or foetus after conception. Amongst these are *lead*, which may be taken as an abortifacient, and, more important, *alcohol*, which can pass from mother to foetus. It is said that 55·2 per cent. of infants born to drunken mothers died as against 23·9 per cent. of those born to sober mothers (4). Also there is a progressive death-rate in the families of drunken mothers: 6·2 per cent. of first born, 11·2 per cent. of second, 7·6 per cent. of third, 10·8 per cent. of fourth and fifth, and 17·2 of sixth and tenth born.

Prematurity probably occurs in about 20 per cent. of maternity hospital cases (4). It seems that if animals are underfed their litter are born weighing less than normal, though they are not premature, and if this obtains amongst the poor (as seems to be the case from figures quoted later) there is little doubt that many infants start at a low level. We must remember that there is the tendency to return to a mean and not expect that the infants of the weakly and delicate mothers will invariably be small and ill-nourished; still, poverty and its consequences on the health of a child-bearing mother has probably an effect in producing a weakly infant, which, though it might develop under good conditions, is unable to fight against bad conditions.

But the *occupation* of women is one of the most potent causes. By this is meant the industrial occupation which takes them out of

their homes and tries their strength severely during, and after pregnancy. House-work does not seem to have the same influence as working either in a mill or factory or in the fields.

Such work acts partly by direct effect on the mother and partly by the effect on the home and the infant. When there is much occupation of women from home then the death-rate is high, especially as the fact that the mother has to work often means extreme poverty and a good deal of mental worry, as well as the physical stress and insufficient food.

(2) *Post-Natal Influences.*

Under these are classed (a) fatal diseases of infancy, including prematurity and immaturity ; (b) domestic and social influences.

(a) *Fatal diseases of infancy, including prematurity and immaturity.*—It has been shown above that 48 per cent. of infant deaths occur in the first trimester, and that the cause of this proportion was that a large number of infants were brought into the world unfit to lead a separate existence in the conditions under which they found themselves. A further study shows first that during the rest of the year of life the infant mortality is chiefly caused by diseases of the lungs and by diarrhœal diseases, and secondly that though the deaths from other diseases are decreasing the infantile mortality from acute lung disease, prematurity and diarrhœa is not decreasing but actually increasing.

Newman concludes from a study of the Registrar-General's report that (1) while other children's diseases are decreasing, prematurity, acute lung disease, and diarrhœal disease are increasing. Of course the recent efforts to decrease epidemic diarrhœa are telling their tales, but the point is that urbanisation tends to increase these diseases ; (2) that prematurity occurs most often in the first trimester, diarrhœa in the second trimester, and pneumonia in the second half of the year or the last two trimesters ; and (3) that the lung disease fatality has increased, but that the diarrhœa and prematurity fatality has increased in much greater proportion, the increase in the amount of diarrhœa being probably due to the increase in artificial feeding.

A study of epidemic diarrhœa leads us to the conclusions (1) that it is chiefly urban, occurring amongst the labouring classes, especially where there is no water-sewage disposal and where there is poor scavenging ; (2) that it occurs chiefly in the third quarter of the first year of life, especially when there is a high temperature and a deficient rainfall, which are conditions favouring

the development of noxious influences from the soil; and (3) that it is also dependent to a great extent on unclean milk.

It is quite possible for breast-fed babies to get epidemic diarrhœa, but they are not nearly so liable to it as are artificially fed babies.

The cause is probably a germ developed and multiplied by favourable conditions such as high temperature and deficient rainfall, spread by flies and by slovenliness and dirty methods in the house; and more likely to effect the artificially fed than the breast-fed baby because of the greater possibilities of contamination of the food of the former, and because the artificially fed are often weaker in resisting power.

But urbanisation has a great effect, for in many rural districts the rate is only 5 per 1000, while in some cities it is 30 per 1000.

When we appreciate these points, the figures from the records of the Manchester Children's Hospital Dispensary are of interest. Firstly, it must be noted that prematurity and immaturity are conditions that find inadequate expression in the death records of a Children's Hospital, because large numbers of infants, dying from these causes within the first few days of life, never come to a hospital, and it has already been pointed out that the greatest number of infant deaths occur in the first few days of life. Probably about 30 per cent. of infant deaths are due to prematurity, immaturity, and atrophy.

On examining the records one striking fact is noticed, namely, that although the number of admissions has increased enormously the number of deaths has decreased. This is explained chiefly by the fact that we now draw our patients from a much larger area, and these patients coming from a distance are not very ill, or if they die do not come on our mortality records, and partly because the deaths from epidemic diseases have decreased considerably, the figures being :

	6 months to 2 years.			Under 6 months.		
	'99-'08	'89-'98	'79-'88	'99-'08	'89-'98	'79-'88
Measles	15	79	181	0	12	16
Whooping-cough.	22	79	121	6	28	62

The total figures for the last thirty years are (including whooping-cough and measles) :

	Under $\frac{6}{12}$.	$\frac{6}{12}$ to 2 years.	2-5 years.	5-14 years.	Total.
'08-'99	772 or 38·2%	1007 or 50·2%	152 or 7·6%	57 or 2·9%	1988
'98-'89	599 or 31·5%	996 or 52·4%	238 or 12·4%	67 or 3·5%	1900
'88-'79	768 or 33·3%	1148 or 49·9%	284 or 12·2%	106 or 4·6%	2300

or 34·5 per cent. in first six months and 50·59 per cent. in the next

eighteen months, giving an average of 16·86 per cent. for second, third and fourth semesters.

Excluding whooping-cough and measles, which are variable both in incidence and in our statistics, but still including congenital syphilis and diarrhœa, the figures for the first two years of life are :

	Under six months.	Six months to two years.	Average for 2nd, 3rd, and 4th semesters.	Total.
'08-'99 .	766 or 44·2%	970 or 55·8%	18·6%	1736
'98-'89 .	559 or 40%	838 or 60%	20%	1397
'88-'79 .	690 or 45%	846 or 55%	18·3%	1536

These figures show how the infantile mortality falls in the early months of life, even when prematurity and immaturity are almost entirely excluded, and more so when epidemic diseases are excluded.

It seems from these figures that the deaths from causes exclusive of measles and whooping-cough have increased slightly, and that the deaths from epidemic disease have decreased very much in our records, this being chiefly due to restrictions as to the attendance of such cases at the dispensary latterly. There is a diminution in the number of deaths from pneumonia and bronchitis, due in part to this diminution in epidemic diseases such as whooping-cough or measles, which so often lead to chest diseases.

As it was pointed out by the late Dr. Ashby, we must divide the diseases into the constant and variable causes of infantile mortality.

Constant	{	Pneumonia and bronchitis.	Variable	{	Diarrhœa.
		Chronic enteritis and			Measles.
		atrophy.			Whooping-cough.
		Malnutrition.			

It must be noted that crowding and urbanisation lead to greater facilities for the spread of infectious disease.

When we eliminate the variable conditions we find that several of the points noted above are well illustrated by the figures. Unfortunately, it has only been in the last ten years that any clear distinction has been made in our statistics between epidemic and the other diarrhœal or wasting diseases, but the figures for the last ten years are as follows :

	Under 6 months.	Six months to two years.
Bronchitis and pneumonia . . .	79 . 185	or divided by 3=96
Chronic enteritis and malnutrition	384 . 289	or divided by 3=62

These figures show how many more children die from wasting disease (apart from epidemic diarrhoea) in the first semester than from bronchitis or pneumonia.

It must be pointed out that epidemic diarrhoea serves as a starting point for many of the cases of chronic wasting disease, but since its effects fall most severely on the later months of the first year, it does not cause so many deaths under six months of age as in the later months. If epidemic diarrhoea is included with the constant factors so that we can take the thirty years, the following figures are obtained :

	Under 6 months.	Six months to 2 years.	Average of 2nd, 3rd, and 4th semesters.
Bronchitis and pneumonia . . .	285 .	623 .	208
Gastro-intestinal and atrophy .	1112 .	1180 .	393

Then we see what a large proportion of the deaths from digestive diseases occur in the first six months as compared with the next three semesters, a fact which does not apply to the respiratory diseases.

Taking the ratio of bronchitis and pneumonia to wasting diseases during the different six month periods :

	Under 6 months.	6 months- 2 years.
For 30 years bronchitis and pneumonia were to wasting and diarrhoea* as	1-4 .	1-1.7 (approx.)
For the last { and diarrhoea .	1-7 .	1-2.7
ten years „ { excluding diarrhoea	1-4.8 .	1-1.5
'89-'99 „ „ including diarrhoea .	1-3.5 .	1-2
'89-'89 „ „ „ „ .	1-2.2 .	1-1.1

These figures seem to show that the wasting diseases cause by far the larger proportion of deaths in the first six months ; and what is more important, that this tendency has steadily increased during the last thirty years.

Before drawing conclusions from these figures, however, we must understand that there has been an increase in epidemic diarrhoea, and that this disease is responsible for much of the wasting diseases

* The hospital reports show the periods of six months, not the trimesters, and until the last ten years very little attempt was made to classify epidemic diarrhoea apart from other diarrhoeal conditions.

of infancy, as it is indirectly a cause of death. (As a proof of this we find that the deaths from wasting diseases, apart from those not certified as epidemic diarrhoea, are greater in the summer and autumn.) But it can be seen from the figures that, even when the deaths due to epidemic diarrhoea during the last decade are excluded, there is still the increase in wasting disease; so the increase in epidemic diarrhoea cannot be the only factor in operation. Again, the returns of the deaths from bronchitis and pneumonia have shown a slight but steady decline, probably due to the smaller attendance of whooping-cough and measles, so often the forerunners of respiratory disease.

With all due allowance for these points, and taking into consideration the fact that, instead of increasing, the number of our deaths has decreased, the conclusions to be drawn from these figures are: (1) that epidemic diarrhoea has increased; (2) bronchitis and pneumonia have shown a slight but steady decrease corresponding to the decrease in the number of deaths from measles and whooping-cough; and (3), the most important conclusion, that *more infants are dying of gastro-intestinal disorders, apart from epidemic diarrhoea, than was formerly the case.*

Congenital syphilis is given in the Registrar-General's report of 1905 as causing only 1·30 per cent. of the infant deaths; in Dr. Forsyth's report of the Evelina Children's Hospital as 5·2 per cent.; and our dispensary, 7·2 per cent., 5·5 per cent. of these deaths being under the age of six months.

The number of deaths from congenital syphilis are greatly underestimated even in hospital records, and much more so in records collected by the Registrar-General.

(B) *Domestic and Social Influences.*

Domestic and social surroundings have great influence on the infantile mortality. In 1908 the Crumpsall infantile mortality-rate was 98 as compared with Ancoats Central 216 and City of Manchester 152. Urbanisation means crowding, pollution, and uneven employment; but worse still, it means stress and strain, late hours, small excesses, and overcrowding. Comparing the different classes the proportions dying in infancy are 13·2 in the upper, 14·8 in the comfortable, and 16·9 in the poor and crowded.

Alcohol has a large effect, as the number of female inebriates is increasing,* and as it may be given to babies when they are put

* Report of the Departmental Committee on Physical Deterioration.

out to nurse while the mother works. Drugs are used in the same way, and there is a very large sale for soothing drugs in large industrial towns.

Illegitimate Children.

The statistics concerning illegitimate children are almost startling, the infant death-rate being about twice as great in the illegitimate as in the legitimate, and when the deaths due to congenital syphilis and digestive disorders are taken by themselves this higher death-rate in the illegitimate is increased to more than twice those in legitimate infants. In 1908 in the City of Manchester the proportion of infant deaths under one year per 1000 births was in the illegitimate 314, and in the legitimate 146; in Ancoats it was 513 to 197; in Hulme 303 to 158.

The causes of this are maternal indifference and neglect, separation, social, economic, and disease conditions in the mother; but the fact that the illegitimate infantile mortality is so great shows how domestic and social conditions can act to the detriment of the child apart from disease. There is also a diminution of fertility and fecundity due to some extent to preventative measures and to pathological conditions resulting from these.

The *unemployment of the father* during and after the pregnancy of the mother has a distinct effect, as shown from the following figures from the Manchester School for Mothers. The numbers represent weights in pounds and ounces, and refer in Column 1 to an average of 14 cases:

	Out of work cases.	All cases weight on joining.	Average weight (Newman).
At one month	6·3 $\frac{1}{4}$.	7·4 .	7·8
At three months	9·4 $\frac{3}{4}$.	10·10 .	10·0
At six months	10·3 .	12·4 .	14·4
At nine months	12·6 $\frac{1}{4}$.	17·4 $\frac{1}{2}$.	16·12

Though these figures are taken from small numbers they show that infants whose fathers are out of work tend to be under weight, and the more so as they get older, the causes being either poor nutrition and defective breast-milk of the mother, or the inability of the parents to procure artificial food if that is necessary.

Infant Feeding.

The great part played by faulty feeding in the production of infantile deaths from digestive system diseases is shown by the

figures from the Children's Dispensary, which have been quoted above.

Experience shows over and over again that breast-feeding is by far the best for the infant, and that unless skilled and constant supervision is obtainable a baby should not be taken off breast-feeding unless there are insurmountable difficulties to its continuation. If the breast milk is insufficient it should be supplemented with other food.

The following table illustrates the value of breast-feeding over artificial, and of mixed-feeding over artificial alone. Each weight is the average taken from fourteen cases.

	Breast-fed.	Mixed-fed.	Bottle-fed.
At one month . . .	8·5 $\frac{3}{4}$. . .	7·11 . . .	6·12 . . .
At three months . . .	12 . . .	10·7 . . .	8·3 $\frac{1}{2}$. . .
At six months . . .	14·6 $\frac{1}{2}$. . .	12·14 . . .	10·3 $\frac{1}{2}$. . .
At nine months . . .	16·14 $\frac{1}{2}$. . .	15·6 . . .	14·6 $\frac{1}{2}$. . .

These cases were selected quite at random from cases under my care at present, and they clearly show how important it is for infants to be fed on the breast if possible or on mixed feeding if they are to avoid the wasting diseases.

With regard to diarrhœa experience shows that where 18·3 per cent. of deaths are in breast-fed infants, 34·7 per cent. are in mixed-fed, and 46·8 per cent. in artificially fed babies.

Another illustration of the importance of breast-feeding was found in the Paris siege, where, through the mothers being compelled to stay at home and look after their children, the infants were more healthy and the infantile mortality was lower than before the siege. Just the same thing happened in Lancashire in the time of famine and during the American Civil War.

Artificial feeding exercises a harmful effect in several ways. It imposes a greater strain on the digestive powers. The foods used are often of insufficient nutritive power, many of the patent foods containing too much sugar and very little proteid, or if of sufficient nutritive value, they may become dirty or be wrongly prepared. Children fed in this way are often left to friends, who may be greatly tempted to give them opium or alcohol preparations if they cry much.

The milk supply of our towns leaves much to be desired, and when it is seen that milk is an excellent medium for the growth of bacteria, and that bacteria may be introduced into milk at the farm, or in transit and in the home, it is easy to understand the importance of a good milk supply.

As Dr. Delépine puts it, "an abundant supply of clean, fresh cow's milk is a matter of national importance."

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VINCENT'S ANGINA.

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THE present paper is based on the study of 32 cases of Vincent's angina observed at the Grove Hospital in the course of the last five years. Prior to April, 1905, when I first became familiar with this form of sore throat, I had seen several cases which on retrospective consideration were probably examples of this condition, but which I had not learnt to recognise as such. Many other observers have doubtless had a similar experience.

Definition.—Vincent's angina may be defined as a faucial lesion, usually of unilateral distribution, characterised by deep ulceration of the tonsil and adjacent structures, a peculiar fœtor and enlargement of the corresponding lymph-glands, and ætiologically associated with the symbiosis of two organisms,* a fusiform bacillus and a spirillum, described by Vincent in 1896 as present in hospital gangrene, and again in 1898 in the lesion to which his name has been given.

Frequency.—Compared with other forms of sore throat Vincent's angina is uncommon. During the three years, 1905-1907, before and after which period it does not figure in the returns, 15,140 cases of diphtheria were admitted to the Metropolitan Asylums Board hospitals, as well as another 3047 cases certified as diphtheria, but diagnosed after admission as suffering from other diseases. Only 95 of the latter were diagnosed as Vincent's angina, the frequency of which is therefore 0·5 per cent. in all forms of sore throat and 3·1

* The fusiform bacillus has been isolated in pure culture by several investigators. Mühlens alone has succeeded in cultivating the spirillum. For a full account of the bacteriology of Vincent's angina, A. Meyer's valuable monograph should be consulted. Repaci's paper may also be mentioned (*vide* references).

per cent. in cases of non-diphtheritic angina. These figures probably under-estimate its real frequency, as in 1905 only 3, in 1906, 4, and in 1907, 6 of the ten hospitals admitting acute cases of diphtheria returned the diagnosis of Vincent's angina in their statistics. Its slightly greater frequency at the Grove Hospital supports this view. During the quinquennium, 1905-1909, 3266 cases of diphtheria were admitted to this hospital, and another 610 were certified as diphtheria, but were found after admission to have other diseases, among which were 30 of the 32 cases which form the subject of this paper. The frequency of Vincent's angina at the Grove Hospital during a period of five years was therefore 0.9 per cent. in all cases of sore throat and 4.9 per cent. in non-diphtheritic angina.

Vincent himself found that it occurred in 2.2 per cent. of all cases of angina. It should be noted, however, that his patients, instead of being of all ages and sexes, like those admitted to the Asylums Board hospitals, were exclusively soldiers between the ages of 20 and 25 years. L. Martin, at the Hôpital Pasteur, met with it only in 2 out of 122 cases of non-diphtheritic angina. Marfan found it in 1 per cent. of all cases of angina admitted to the diphtheria block at the Hôpital des Enfants Malades. A. Meyer saw 30 cases in five years in Heymann's throat and ear department at Berlin among 15,000 cases of this speciality.

Age and sex.—The ages and sexes of the 32 patients are shown in the following table :

TABLE I.

Years.	Males.	Females.
0-2	0 .	0
2-3	2 .	1
3-4	3 .	2
4-5	4 .	2
5-6	2 .	4
6-7	0 .	2
7-8	0 .	3
8-9	0 .	0
9-10	2 .	0
10-11	0 .	0
11-12	0 .	1
12-13	0 .	2
14-15	1 .	0
16-17	1 .	0
	15	17

Thus 14 occurred in the first quinquennium, 13 in the second, 4 in the third, and 1 in the fourth. Fifteen were males and 17 females. Illustrative of its occurrence at the extremes of life are Athanasiu's case in a child aged 26 months, and Rudloff's in a man aged 81 years.

As the figures above testify, it is relatively rare in adults. An exception to this rule occurs in the case of soldiers, on whom Vincent's original observations were made, and medical students, among whom cases have recently been reported by Buhlig and Gordon. According to Vincent it shows a predilection for those working in the dissecting room.

Contagiosity.—It is a striking fact, at once illustrative of its rarity among adults and of its feeble contagiousity, that none of the staff at the Grove Hospital contracted the disease during these five years. This is all the more remarkable, as they are very liable to various forms of sore throat. Thus during this period 196 suffered from follicular tonsillitis and 19 from quinsy, and their susceptibility to infection is further shown by the fact that 40 developed scarlet fever and 37 diphtheria during the same period.

Although no instances of contagion have been furnished by the present series many such cases have been observed. The disease has been conveyed by kissing, or by the use of an infected pipe or glass (Vincent). In Royster's case a dentist was infected by his patient, and in cases recorded by Vincent and Costa the reverse occurred. Goldenburg mentions a family epidemic in which the father, mother, and two children were affected. In the parents the disease was slight, but in the children fairly severe. Small epidemics in children's homes have been reported by Cushing. Buhlig describes an outbreak among medical students who had a tobacco pouch in common, the string of which they fastened with their teeth, and Todd states that a pathologist, after examining throats in a lunatic asylum during an epidemic of Vincent's angina, caught the disease himself.

Seasonal incidence.—As is seen from Table II, the disease was commonest in the spring and rarest in the autumn.

Thus 7 occurred in the first quarter, 15 in the second, 4 in the third, and 6 in the fourth.

The experience of other observers is different. Eight of Meyer's 30 cases occurred in September, only 3 between September and March, and 21 between June and October. Reiche, on the other hand, found his cases were most frequent during the warm months.

TABLE II.—*Showing the Months in which the Cases were admitted.*

January	3 cases.
February	2 "
March	2 "
April	6 "
May	5 "
June	4 "
July	2 "
August	2 "
September	0 "
October	3 "
November	2 "
December	1 case.

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Previous health.—Some writers, including Vincent himself, have laid special stress on general ill-health and oral sepsis as predisposing causes. Others, such as Baron, Blackwood, Lavagna, and Reiche, with whose experience my own accords, found the disease equally frequent among those previously healthy. Carious teeth were doubtless present in most, if not all of my cases, but not to a greater extent than in other children, nor was the general condition below par. Nine had had no previous illness whatever, and 23 had had one or more of the acute exanthemata.

Clinical picture.—It is customary to distinguish two forms of Vincent's angina, an ulcerative and a membranous or diphtheroid, but in my experience the ulcerative is only a later stage of the diphtheroid. The slough which covers the ulcer may so closely simulate diphtheritic membrane, that even after considerable experience the condition may be regarded as diphtheria and treated accordingly, especially as the characteristic factor is often absent in the early stage. Thus 10 cases in which no diphtheria bacilli were subsequently found were diagnosed as diphtheria on admission, and received doses of antitoxin ranging from 4000 to 16,000 units. In some of these cases the faucial condition seemed to be benefited by serum treatment, probably through stimulation of local leucocytosis. No help in diagnosis can be gained from the history of the onset, the prodromal symptoms being those common to any angina. Thus in 28 there was a history of sore throat, in 11 of headache and vomiting, in 18 of swollen neck-glands, and in 7 of shivering. It is of special interest that nasal discharge, which is so frequent an

initial sign of diphtheria, occurred in 14 cases. In 9 it was present on admission, and in another 5 it had been noticed at the commencement of the disease, but had ceased before admission.

The resemblance to severe diphtheria is sometimes increased by the presence of faucial œdema, which was found in 5 cases. Adenitis, usually confined to one side, may be considerable, but I have never observed in Vincent's angina anything resembling the proconsular neck of toxic diphtheria. In every case the inflammation resolved completely. Suppurative adenitis, as Vincent has pointed out, is unknown.

The fœtor of Vincent's angina, though absolutely characteristic and quite distinct from that of malignant diphtheria, may mislead, those who have had no experience of the former disease. Thus one case in which the odour was very pronounced was brought to hospital by the parents, without waiting for the ambulance, because the certifying practitioner had said that it was a severe case of diphtheria which should be removed to hospital at once.

In the great majority of cases Vincent's angina is a unilateral affection, or, if both sides of the fauces are involved, the lesions are predominant on one side. Thus in 12 cases the right, in 11 the left, and in 9 both sides were affected, but in 5 of the latter the lesions were predominant on the left and in 2 on the right.

In 20 cases the uvula was involved, in 8 cases the right and in 12 the left side being affected. Damage to this organ in the present series was never considerable, and complete regeneration of tissue always occurred. Cases, however, in which the whole uvula has been destroyed have been recorded by Auché and by Niedner. In none of my cases was the larynx attacked, as in those published by Arrowsmith, Bruce, and Reiche. Ulcero-membranous stomatitis, which is also due to the fuso-spirillar symbiosis, was not present in any of my cases, but this co-existence of the two affections, or rather, multiple localisation of the same disease, has been recorded by Niclot and Marotte, Grenet, Widai and Darré, Crandall, and others. In one of Blackwood's cases the specific stomatitis was followed by typical angina. In Crandall's case, on the other hand, the disease was first confined to the throat, but was inoculated into the gums by a dentist while scaling the teeth. A similar case is recorded by Costa. In convalescence from scarlet fever I have met with ulcero-membranous stomatitis in which the characteristic odour suggested the presence of Vincent's organisms, which were found to be very plentiful on bacteriological examination. I have not, however, found them in the ulcerative angina of the acute stage of scarlet

fever, as Simonin, Vedel and Lagriffoul, and Weaver and Tunnicliff have done.

Disproportion between the severity of the local and general symptoms is one of the most striking features of Vincent's angina. In most of my cases the constitutional disturbance was slight and lasted only during the pyrexial period, which, as a rule, was of short duration. In 5 the temperature was normal throughout their stay in hospital, though the local process was still in an acute stage on admission; in 10 it ranged between 99° F. and 100° F.; in only 4 did it rise above 102° F., the highest reading being 103·8° F. In 11 cases the temperature became normal within twenty-four hours of admission, and in only 2 did the pyrexia persist for more than four days after their arrival. Compared with diphtheria, the specific disease which it most closely resembles, Vincent's angina is a protracted affection. Whereas in diphtheria the throat becomes clean a few days after the injection of antitoxin, the healing process in Vincent's angina requires as a rule a much longer time. The average period in the 32 cases was eighteen days, the extreme limits being five days in the mildest, and fifty-nine days in the most severe.

A still more chronic course has been recorded by several writers. In one of Arrowsmith's cases the ulceration lasted over two months and involved the right tonsil, anterior and posterior pillars, epiglottis, and pharynx.

In Bayer's case the process lasted between three and four months, and defied all local treatment. Finally recovery took place under arsenic internally and strengthening diet.

In Pusateri's case, in which the diagnosis of tuberculous ulceration of the tonsils was first made, the disease lasted for over a year. Murray and Todd have also recently recorded cases of chronic ulceration of the tonsils associated with the presence of Vincent's organisms.

Two of my cases had a relapse. One occurred on the ninth day, and was probably due to accidental inoculation during painting of the throat, as the child struggled at the time. The other relapse occurred without obvious cause on the twenty-fourth day. In both cases the right tonsil and right side of the uvula were involved in the relapse, whereas the left tonsil and left side of the uvula had been affected in the initial attack.

As a rule, the fuso-spirillar couple disappears as healing commences. The fusiform bacilli persist longer than the spirilla. In 2 cases in which the organisms were found in great abundance on the fifth and seventh days, smears taken on the 10th and 9th days

respectively were negative. In another case, in which numerous fusiform bacilli and a few spirilla were found on the eighth day, there still some fusiform bacilli, but no spirilla on the twentieth, two days before the throat became clean.

In a mild case, where the disease was confined to the upper part of the left tonsil, numerous fusiform bacilli and spirilla were present on the ninth day, before treatment was started. After the application of methylene-blue powder on two successive days the fusiform bacilli were still numerous, but the spirilla had disappeared. On the fourteenth day, when only very slight opacity of the mucosa marked the site of the original lesion, neither fusiform bacilli nor spirilla could be found.

Association with other diseases.—In 4 cases, in addition to the fuso-spirillar couple found in the smear, organisms morphologically indistinguishable from diphtheria bacilli were present in the cultures. Antitoxin was given, the faucial lesions healed more rapidly than in the uncomplicated cases, and no paralyses resulted. It was at one time thought that the presence of Vincent's angina was enough to exclude diphtheria, but the error of this view soon became manifest. It is true that the co-existence of the two diseases is not common. Meyer points out that the mere presence of Klebs-Loeffler bacilli in the culture does not justify the diagnosis of diphtheria, if the clinical appearances do not correspond, as they have been found in obvious cases of Vincent's angina, without producing any change in the clinical picture. In such cases they were either non-virulent, or if virulent they did not necessarily take any part in the morbid process. Cases, however, similar to the four just mentioned, have been recorded by Blumenthal, Többen, Nieder, and Weaver and Tunncliffe, in which prompt improvement followed the injection of antitoxin. In practice, therefore, it is advisable to treat as diphtheria those cases of Vincent's angina in which organisms resembling diphtheria bacilli are present in the culture.

The association of a comparatively mild local disorder like Vincent's angina with a serious general disease like diphtheria may be compared with the co-existence of soft chancre with syphilis. In these mixed lesions the soft chancre dominates the scene, and the possibility of the more serious infection is ignored until the explosion of secondary symptoms reveals the unwelcome truth.

In one case there was a probable co-existence of inherited syphilis. A girl, aged 4 years, was admitted on May the 17th, 1905, with ulceration of both tonsils, covered with yellow slough. The lesions were predominant on the left side. No diphtheria bacilli were

present in five successive cultures, but smears showed numerous fusiform bacilli and spirilla. In spite of applications of iodine twice daily, the ulceration persisted until July the 7th, when she was given a mixture containing liq. hydrarg. perchlor. and pot. iod. thrice daily. Within a week the ulcers had completely healed.

Apart from the therapeutic result, there was nothing to suggest syphilis in this case beyond some flattening of the bridge of the nose. The value of Wassermann's reaction, which at that time had not been discovered, is obvious in a case of this kind, as Sobernheim has recently shown in dealing with the co-existence of Vincent's angina and latent acquired syphilis.

No other instances of the co-existence of Vincent's angina and inherited syphilis have been recorded, but there have been several cases published of Vincent's angina in all stages of the acquired disease. In Lagriffoul and Bousquet's case typical Vincent's angina shortly preceded the roseola. In the cases of Malherbe, Moutot, and Salomon, symptoms of secondary lues were already present. In Sobernheim's case the *Spirochæta pallida* was associated with Vincent's organisms in the throat lesions.

Sack records a case of the co-existence of Vincent's angina with tertiary syphilis, in which recovery took place under iodide of potassium. It is interesting to note in this connection as illustrative of the action of the fuso-spirillar couple in ulcers situated elsewhere than in the bucco-pharyngeal cavity, that Launois and Laederich found Vincent's organisms in a phagedænic chancre of the penis, together with the *Spirochæta pallida*.

An instructive case is recorded by Balzer and Poisot of the association of Vincent's organisms with Ducrey's bacillus in gangrenous soft chancre. As in Vincent's angina, the general condition did not correspond to the local lesion. The temperature was normal and the pulse 76. That the local malignancy was due rather to Vincent's organisms than to the organism of soft chancre was proved by the considerable improvement which followed the application of methylene-blue. The fuso-spirillar couple completely disappeared in two days, though Ducrey's bacillus still persisted.

Hébert's unique case may also be mentioned here. A man suffering from specific urethritis developed stomatitis of the gums and cheeks, associated with angina, bacteriological examination of which showed gonococci and Vincent's organisms. The case was successfully treated with a gargle and mouth-wash of potassium permanganate.

In only one case of the present series did Vincent's angina arise in convalescence from an acute specific disease. This was in a boy, aged 9 years, on the twenty-sixth day of an ordinary attack of scarlet fever. In all the others the disease was primary. With the exception of this and of another case certified as scarlet fever, all the cases were sent in as diphtheria. In all but three cases, in which it arose after some weeks' stay in hospital, the angina was already present on admission. Of the three exceptions, two were cases certified as bacteriological diphtheria, but in whom no clinical nor bacteriological evidence of diphtheria was found after admission.

The third case was that secondary to scarlet fever already mentioned.

The occurrence of Vincent's angina as a sequel of pertussis has been observed by Barlow, Graupner, and Weaver and Tunnicliff, as a sequel of measles by Weaver and Tunnicliff, and of diphtheria by Graupner.

Complications.—The only complications noted in the thirty-two cases were albuminuria in two cases which lasted two and four days respectively, serum phenomena in seven of the twelve injected with antitoxin, and the following skin eruptions: One case prior to admission presented a scarlatiniform rash, which was the cause of its being certified as scarlet fever. A similar case is recorded by Eisen, who regarded the diagnosis of scarlatina as improbable, on account of the transient character of the eruption, the complete absence of desquamation, and the slight and transient pyrexia.

Herpes labialis occurred in only one case as compared with diphtheria and non-specific tonsillitis, in which, as I have shown elsewhere ('Brit. Journ. Derm.,' 1907, p. 375), it was found with a frequency of 4 per cent. and 13 per cent. respectively.

In one case miliaria of the neck was seen on the fifth day of disease. Joint affections, the occurrence of which in Vincent's angina was recorded by Simonin and Niclot and Marotte, were not observed.

Reiche had two cases which developed palatal and ciliary palsies, loss of knee-jerks and ataxia. No similar observations have been made by others, and in spite of the negative bacteriological examination it is difficult to believe that co-existent diphtheria had not been present.

According to Simonin complications are more frequent after the stomatitis due to Vincent's organisms than after the angina due to the same cause. This he attributes to the powerful leucocytic defence provided by the tonsils. A similar opinion is expressed by

Ivanow, who found such complications as erythema multiforme, joint pains, abscesses, and appendicitis more frequent in the cases accompanied by severe stomatitis and glossitis. Like Simonin he regarded their occurrence as due to secondary infection by streptococci. The absence of serious complications in my own cases may therefore be attributed to the lack of concomitant stomatitis.

Prognosis.—The present series confirms the general rule as to the benignity of Vincent's angina.

About half-a-dozen fatal cases have been recorded. In one of Bruce's cases death was due to toxic absorption from the site of the local lesion, and in another two to suppurative broncho-pneumonia after involvement of the larynx. Pneumonia was also the cause of death in De Carli's case. In Giliberti's case the angina was associated with ulcero-membranous stomatitis, which was followed by osteomyelitis of the lower jaw. In Meyer and Schreyer's case pernicious anæmia was probably a predisposing cause of infection by Vincent's organisms, and explained the fatal issue. In Royer's case, which occurred in a pregnant woman, death took place a few days after delivery. In addition to ulcero-membranous stomatitis, pulmonary tuberculosis and gangrene, nephritis and endometritis were also present.

Most of these cases, however, as Meyer has pointed out, should be rather regarded as gangrene of the pharynx than as Vincent's angina.

Treatment.—In most cases it is sufficient to swab the affected part morning and evening with undiluted tincture of iodine, as Vincent himself recommends. If the fœtor is excessively penetrating, the throat may be syringed with a solution of potassium chlorate and myrrh. In one case where the ulceration advanced in spite of these measures, the application on two successive days of powdered methylene-blue to the ulcers was followed by rapid healing. Both in this and in another case where this treatment was adopted from the first, the urine passed within three hours of the application was light blue, but rapidly resumed its normal colour when the methylene-blue was discontinued. No internal medication was found to be necessary in any case.

SUMMARY.

(1) Vincent's angina is an uncommon disease, occurring in 0·9 per cent. of all cases of sore throat, and in 4·9 per cent. of cases of non-diphtheritic angina.

(2) During a five years' period of observation in a hospital

population of all ages, the affection was confined to children between two and sixteen years.

(3) No instances of contagion were observed.

(4) Its incidence was greatest in the spring, least in the autumn.

(5) It was not found to show any predilection for weakly children or for cases of oral sepsis.

(6) There is nothing characteristic in its prodromal symptoms.

(7) There are not two distinct varieties of Vincent's angina. The ulcerative is merely a later stage of the membranous form.

(8) Constitutional symptoms are slight or absent, but the local affection is more pronounced than in diphtheria.

(9) Association with other diseases is uncommon.

(10) The prognosis is favourable. Complications are infrequent and usually insignificant.

(11) Treatment consists in the local application of tincture of iodine or methylene-blue powder. Internal medication is usually unnecessary.

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OBSERVATIONS ON THE BRUITS HEARD OVER THE
MANUBRIUM STERNI IN CHILDREN.

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THE objects of this paper are (1) to point out that bruits are very frequently heard upon auscultation over the upper part of the sternum in children when the head is bent back so that the face is horizontal, and (2) to endeavour to show how these bruits are produced.

For many years it has been my custom to auscultate over the upper part of the sternum in nearly all the children examined, and to do so with the neck extended by telling the patients to look up at the ceiling, and I was surprised to find how very frequently what appeared to be a venous hum could be heard in this situation. Having found this bruit in a large number of children, and having come to a conclusion as to its cause, the next 500 children were very carefully examined, in order to record each case in which it was present, and to see if it were possible to confirm my opinion of the condition producing this phenomena. This paper, therefore, is the result of the examination of a consecutive number of 500 children, the only cases that were excluded being those suffering from cardiac disease. The cases examined were taken from the out-patient departments of the General and Children's Hospitals, Birmingham, and ranged from six months to twelve years of age. To my great surprise, of the 500 children examined this bruit was distinctly heard in sixty-five, when the neck was extended as described above, and in many instances the presence of the bruit was confirmed by other observers. This is 13 per cent., or 1 in 7·7. The bruit was not always immediately heard when the head was bent back, but became obvious after a short period, rarely longer than half a minute. It was exactly like the venous hum which is heard in the necks of girls suffering from chlorosis, but was usually not so long, and rarely continuous. It always disappeared when the head was raised to the erect position.

It has been thought that this bruit is caused by pressure on the left innominate vein by enlarged mediastinal glands, and I quote the words of Dr. Eustace Smith, who first described the bruit, and after whom it has been named: "If the child be made to bend back the head, so that his face becomes almost horizontal, and the eyes look straight upwards at the ceiling above him, a venous hum, varying

in intensity according to the size and position of the diseased glands, is heard with the stethoscope placed upon the upper bone of the sternum. As the chin is now slowly depressed, the hum becomes less loudly audible, and ceases shortly before the head reaches its ordinary position. The explanation of the phenomenon appears to be that the bending back of the head tilts forward the lower end of the trachea, which carries with it the glands lying in its bifurcation, and the left innominate vein, as it passes behind the first bone of the sternum, is compressed between the enlarged glands and the bone. In cases where this sign has been noticed there has often been some slight dulness over the manubrium, leading one to suspect the existence of enlargement of the glands; and the occurrence of the hum thus produced the writer always considers to be evidence confirmatory of the suspicion.”*

While granting that a venous hum may result from the compression exerted by enlarged glands in the manner above described, the author is unable to bring himself to believe that this was the cause in the large percentage of cases in which he observed the bruit. There is no doubt that enlarged mediastinal glands can cause a similar bruit, and reference may be made here to two cases illustrating this, which were shown by Dr. Leonard Guthrie and Dr. Langmead before the Society for the Study of Disease in Children.† In each of these cases there were other physical signs pointing to the presence of a mediastinal tumour. Very careful examination was made to detect the presence of enlarged glands in all the cases in which this bruit was heard, and in none of them could any definite evidence of them be found. Percussion over the sternum did not demonstrate any dulness and no other signs of pressure were obtained, such as dilated veins in the chest-walls or fulness of the veins of the neck. There were no indications of pressure on a bronchus. The great number of cases, therefore, in which the bruit was heard seemed in itself to exclude the enlargement of mediastinal glands being the cause, and indicated that the bruit is of no importance apart from other physical signs.

The next step was to ascertain the cause of this so frequently occurring bruit, and in attempting to do this I began by seeing if the bruit was conducted in any definite direction. I then found out that it could be heard over the internal jugular veins in the neck, either on both sides, or only on one side. Further examina-

* ‘The Wasting Diseases of Children,’ by Eustace Smith. Sixth edition, 1899, p. 315.

† ‘Reports of The Society for the Study of Disease in Children,’ vol. viii, p. 327.

tion of the cases proved that whenever the bruit was heard over the sternum it could always be heard in the neck on one side or the other. At first it appeared as though the bruit was conducted upwards into these veins, but it soon became evident that the bruit over the jugular veins was louder than that over the sternum.

It was found that the best situation to auscultate over the internal jugular vein in a young child is about one inch above the sterno-clavicular articulation, over the anterior border of the sterno-mastoid muscle. Care must be taken in order not to produce a bruit by undue pressure with the stethoscope. On account of the unevenness of the surface between the positions where the bruits are heard in the neck and over the sternum, it is impossible as a rule, with the ordinary chest-piece, to follow the bruits with the stethoscope the whole way. Auscultation, therefore, is performed over the neck and then over the sternum and the loudness of the two bruits compared.

The following cases are all those out of the 500 children examined in whom a bruit was heard over the upper part of the sternum at the level of the first intercostal space when the head was bent back so that the face was horizontal. In the first 17 cases the side on which the bruit over the internal jugular vein was heard the more intensely was not recorded, but in all the cases except Case 132 the bruit was louder over the veins in the neck than over the sternum.

No. of case.	Sex.	Age.	Disease.	Where loudest heard.	Evidence of enlarged glands.	Remarks.
8	M.	7 6	Bronchitis	Over jugulars	No	Bruit appeared as soon as chin was raised, and then gradually disappeared over the sternum, but remained in the neck.
9	M.	8 10	Slight cough	"	"	No abnormal physical signs in chest.
13	M.	6 9	Diarrhœa	"	"	—
24	F.	6 0	Debility	"	"	No suggestion of tuberculosis.
32	M.	6 0	"	"	"	Very anæmic.
36	M.	5 2	Seborrhœic eczema	"	"	Quite well.
58	M.	4 0	Rickets	"	"	No cough; legs very bowed.
62	F.	8 5	Bronchial catarrh	"	"	Cough since infancy, bruit disappeared after a little time.
70	M.	6 6	Bronchitis	"	"	Cough since infancy.
71	M.	9 10	Subacute nephritis	"	"	No cough.
75	F.	11 6	Debility	"	"	No cough, very anæmic.
77	M.	6 0	Bronchial catarrh	"	"	Cough since infancy.

No. of case.	Sex.	Age.	Disease.	Where loudest heard.	Evidence of enlarged glands.	Remarks.
96	M.	4 8	Debility	Over jugulars	No	No cough.
110	F.	6 1	"	"	"	No cough, functional bruit at cardiac apex.
111	F.	4 0	Pertussis	"	"	Bruit altered slightly with respiration, increasing in intensity during inspiration.
114	F.	4 8	Adenoids	"	"	No cough.
117	M.	4 1	Debility	"	"	"
132	M.	7 6	"	Over sternum	"	Bruit conducted into left side of neck.
147	M.	5 4	Bronchitis	Over jugulars	"	Bruit also heard in each subclavicular region.
154	M.	4 1	Debility	Right jugular	"	No cough.
160	F.	3 10	Anæmia	Both jugulars	"	"
166	F.	8 2	Debility	Right jugular	"	Loudest in neck and over right sterno-clavicular junction.
168	F.	5 2	"	Both jugulars	"	No cough.
170	F.	3 6	Bronchitis	"	"	—
173	F.	5 0	Follicular tonsillitis	"	"	No cough.
184	F.	6 0	Chorea	"	"	"
186	M.	5 0	Debility	"	"	"
189	M.	8 0	"	"	"	"
191	F.	6 0	Bronchitis	"	"	—
196	M.	3 6	"	"	"	—
197	M.	6 9	Debility	Left jugular	"	Also audible over right jugular, no cough.
201	F.	2 6	Bronchitis	Both jugulars	"	—
209	M.	6 4	Bronchial catarrh	"	"	Bruit over sternum varied in intensity with respiration, increasing during inspiration.
233	M.	5 0	Bronchitis	"	"	—
234	M.	9 0	Debility	"	"	No cough.
235	M.	4 8	"	Right jugular	"	Also audible over left jugular, no cough.
244	F.	3 0	"	Both jugulars	"	No cough.
253	F.	5 6	"	Right jugular	"	"
254	M.	3 8	Bronchitis	Both jugulars	"	—
258	M.	2 0	Debility	"	"	No cough.
260	F.	5 6	"	"	"	"
280	F.	6 0	Bronchitis	Left jugular	"	Also " audible over right jugular.
286	M.	5 0	Seborrhœic eczema	Both jugulars	"	Otherwise apparently healthy.
297	M.	8 8	Adenoids and tonsils	"	"	No cough.
307	M.	5 1	Debility	"	"	"
309	F.	6 5	Bronchitis	Left jugular	"	Not audible on right side.
320	M.	7 0	"	Both jugulars	"	No cough.
325	F.	7 0	"	"	"	—
328	M.	5 3	Bronchial catarrh	"	"	—
338	M.	5 10	Debility	Left jugular	"	Audible over right jugular, no cough.

No. of case.	Sex.	Age.	Disease.	Where loudest heard.	Evidence of enlarged glands.	Remarks.
351	M.	5 6	Debility	Left jugular	No	Not audible over right side, no cough.
367	F.	4 6	Subacute rheumatism	Both jugulars	"	No cough.
405	M.	5 6	Debility	Left jugular	"	Audible over right jugular.
406	F.	2 10	Bronchitis	"	"	" " "
415	M.	3 2	Debility	Both jugulars	"	No cough.
435	F.	4 11	Catarrhal jaundice	"	"	"
448	F.	5 10	Debility	Left jugular	"	Not audible on right side.
450	F.	2 4	Catarrhal jaundice	Right jugular	"	Audible on left side, no cough.
464	F.	7 6	Debility	Both jugulars	"	No cough.
465	F.	7 4	Follicular tonsillitis	"	"	Slight cough.
475	F.	5 6	Debility	Left jugular	"	Audible over right jugular.
479	M.	6 0	"	Both jugulars	"	No cough.
483	M.	5 1	Enuresis	"	"	"
486	M.	5 10	Debility	Left jugular	"	Audible over right jugular, no cough.
497	F.	9 1	Enteritis	Both jugulars	"	No cough.

Of the sixty-five cases, eighteen were suffering from some affection of the bronchi, twenty-eight were in a debilitated condition, in which no evidence of disease could be found, and of the remaining nineteen some definite malady was diagnosed which could not be connected with any disease in the chest.

The age of the youngest child was $2\frac{1}{2}$ years and the oldest $11\frac{1}{2}$ years. Only children up to twelve years of age were examined for this bruit, and the commonest age to find it was from four to nine years. The table on the following page shows the number of the children and their ages.

In all the cases except one the bruit in the neck was louder than that over the sternum. In ten cases, in which the bruit could be heard over each side of the neck and over the sternum, it was loudest over the left internal jugular vein. In five other cases it was loudest over the right internal jugular vein. In three cases the bruit was louder over the left side of the neck than over the sternum, but was not audible over the right side of the neck.

Case 132 was the only one in which the bruit over the sternum was louder than that in the neck.

It does not necessarily follow that because a bruit is heard louder over the neck than over the sternum, it has its origin in the former position. There are many instances in the auscultation of the heart

Age.	Number examined.			Number in which the bruit was present.			Percentage having bruit.
	Male.	Female.	Total.	Male.	Female.	Total.	
Under 1	4	2	6	—	—	—	—
1-2	21	21	42	—	—	—	—
2-3	35	33	68	1	3	4	6.2
3-4	27	36	63	3	3	6	9.5
4-5	26	28	54	5	4	9	16.6
5-6	39	31	70	12	7	19	27.1
6-7	27	24	51	7	6	13	25.5
7-8	23	20	43	2	3	5	11.6
8-9	17	17	34	3	2	5	14.7
9-10	8	12	20	2	1	3	15.0
10-11	7	13	20	—	0	0	—
11-12	8	21	29	—	1	1	3.4
Total	242	258	500	35	30	65	13.0

in which a bruit is heard louder over a different portion of the chest-wall to that which immediately overlies the place where it is produced. If this bruit arose in the left innominate vein, the site of its production would be a little further from the external surface than if it were produced in the internal jugular vein. On the other hand, it might be contended that the sternum was a good conductor of sound, and consequently a bruit arising in the chest would be heard louder over the sternum than a similar bruit of the same intensity arising in the jugular vein would be heard in the neck. Not much reliance, therefore, can be placed upon the position of maximum intensity of the bruit as indicating the site of its production, but further considerations of the bruit help in deciding its point of origin. Thus it was found—(1) that in all cases in which a bruit could be heard over the sternum it was always audible in the neck, and (2) that a bruit was often heard in the neck when the head was bent back without it being audible over the sternum. The only conclusions that can be arrived at from these two facts are that in many children a bruit is produced in the internal jugular vein by the head being bent back, and that it depends upon the loudness of the sound whether it can be heard over the sternum.

A further point was ascertained which seemed to throw some light upon the causation of these bruits, and that was that the side of the neck over which the bruit was heard more intensely could be altered by getting the patient to turn the chin to one or other side. It was found that the bruit in the neck became louder when

the chin was turned to the opposite side, so as to put the jugular vein even more on the stretch. It was also found that the increased loudness of the bruit in the neck brought about by this change in position caused also an augmentation of the bruit over the sternum, and that sometimes when the venous hum could not be heard over the sternum with the head bent back and the chin in the middle line, it became audible over the sternum when the chin was turned to one side, thereby increasing the intensity of the bruit in the jugular vein, and giving it a better chance of being conducted downwards to the anterior wall of the chest.

From these observations it would appear that the venous hum is produced in the internal jugular vein, and that it is conducted to the upper part of the sternum. It is far more likely for the bruit to be conducted in the direction of the blood-stream than that it should travel in the opposite direction. If the bruit, which is heard over the sternum, be produced by enlarged glands pressing the left innominate vein up against the sternum, as Dr. Eustace Smith supposes, any conduction of the bruit backwards along the vein would be expected to show itself over the left internal jugular or left subclavian vein—that is to say, the bruit would be conducted upwards and to the left. This does not agree with my observation, for very frequently the bruit was audible on both sides of the neck, and sometimes only on the right side; so it is difficult to conceive that if the bruit were produced in the left innominate vein it could be conducted not only backwards to the left, but also along the left innominate vein to the right innominate vein, and then upwards into the right side of the neck. It seems, therefore, most probable that the bruit arises in one or both internal jugular veins and is conducted downwards to the sternum.

Granting that the bruits arise in the internal jugular veins it is easy to understand how they are produced. Bending the head backwards puts these veins on the stretch, and causes them to be compressed against the transverse processes of the lower cervical vertebræ. The sterno-mastoid muscle also compresses them, for it becomes very tense when the head is thrown back in the position required for the examination. The sterno-hyoid, sterno-thyroid, omo-hyoid muscles, and even the platysma may help in this compression. The stretching of the vein and its compression must diminish the size of its lumen over a certain portion, and therefore a condition is produced in the vein which is likely to give rise to a bruit. That the bruit is produced in this way is also supported by the fact that when the chin is directed to one side a bruit often appears over the

side which is on the stretch. A bruit can often be made to appear in this way when previously it did not exist with the chin in the middle line.

The venous hum over the sternum in children with the head thrown back appears, from these observations, to be a normal condition in the great majority of cases, and should be considered to be of no importance unless accompanied by physical signs of compression.

The Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Provincial Meeting at Portsmouth, Saturday, June the 11th, 1910.

Dr. CAUTLEY in the Chair.

A Case of Multilocular Cystic Hygroma of Neck.—Mr. CHARLES P. CHILDE showed a child, aged 4 years, in whom a small soft swelling had been noticed in the angle between the left clavicle and the anterior border of the trapezius two weeks after birth. This had grown progressively. A fortnight ago the portion beneath the lower jaw had become painful and tender, with a rise of temperature to 100° F. This subsided in a week, leaving this portion of the swelling hard.

The case was discussed by Mr. DOUGLAS DREW, who advised removal of the cysts at one operation.

A Case of Subperiosteal Resection of the Shaft of the Ulna for Tuberculous Osteomyelitis.—Mr. CHARLES P. CHILDE showed a child, aged 7 years, with four and a half months' history of pain over the upper end of the right ulna. A swelling appeared later, which was opened. A skiagram exhibited the tuberculous deposit in the ulna. Complete subperiosteal excision of the shaft of the ulna was performed, the bone being sawn through above, below the coronoid process, and wrenched off the lower epiphysis. The case had progressed satisfactorily, and the new ulna, formed from the periosteum, could be distinctly traced on the screen.

In discussing the case, Mr. H. LETT mentioned a similar case in which he had used a prop very successfully to support the bones after resection.

A Case of Partial Tarsectomy for Tuberculous Disease.—Mr. CHARLES P. CHILDE showed a child, aged 5 years, in whom a swelling appeared over the dorsum of the right foot when aged two. This opened and discharged till the time of the operation in October, 1908. Incisions on each side of the foot were made and reflection of the tendons performed. A large portion of the mid-tarsus, including the disease, was removed with the saw. The child had a very useful foot.

A Case of Pseudo-hypertrophic Muscular Paralysis.—Mr. W. CARLING showed the patient, a boy, aged $8\frac{1}{2}$ years.

A Case of Absence of Puncta Lachrymalia (Bilateral).—Dr. L. COLE-BAKER showed a child, aged 10 years, suffering from epiphora since birth. An attempt was made to pick up the opening in the canaliculus in left lower lid without success. Both glands were removed through the conjunctiva at outer angle of upper lid.

A Specimen of Large-celled Sarcoma of the Brain was shown by Dr. JOHN T. LEON. A boy, aged 16 years, was brought up for deafness. No deficiency in the auditory apparatus was found, but very slow cerebration. There was no paralysis or other motor symptoms, except tremors of hands and nystagmus. Double optic neuritis was present.

Specimens of Peritoneal Growths from a Case of Lymphocythæmia were shown by Dr. JOHN T. LEON. The specimens were taken from a girl, aged $6\frac{1}{2}$ years, who was admitted to hospital on May the 28th, 1908, for intense anæmia, enlarged spleen and liver. Blood-count on admission: reds, 560,000; white cells, 17,500. Post-mortem: Lymphoid growths were present in practically every organ. The liver weighed $30\frac{1}{2}$ oz., the kidneys 11 oz. and 9 oz., and the spleen $5\frac{1}{2}$ oz., all these organs being the seat of numerous growths.

The case was discussed by Dr. SPRIGGS.

A Specimen of Intussusception of the Small Intestine, containing a Sarcoma of Intestinal Wall; Enterectomy; Recovery.—Mr. C. S. RIDOUT showed the specimen, which was taken from a boy, aged 4 years, who had suffered from severe attacks of pain and vomiting. A mass could at times be felt in the abdomen. Operation: A congested enteric intussusception was found, quite irreducible. The whole of the intussusception was resected, and an end-to-end anastomosis rapidly performed by suture. The patient recovered. Examination showed that the cause of the irreducibility was a puckered, indurated growth of the intestinal wall. Microscopically the growth was a round-celled sarcoma. Patient died some months later with secondary deposits in the liver.

A Case of Extensive Injury to the Head in a Boy, aged 7 years, was shown by Mr. C. S. RIDOUT. As a result of an injury a large part of the skull in the Rolandic area had been removed. There was pulsation of the scalp; athetosis of the right hand was present. The mental power was good.

The case was discussed by Dr. SPRIGGS and Mr. DOUGLAS DREW.

A Case of Ectopia Vesicæ.—Mr. CHILDE showed a child, aged 3 years, on whom he had operated for ectopia vesicæ by implantation of the ureters into the rectum.

Mr. DREW, Mr. MUMMERY, Mr. MORGAN, of Brighton, Dr. SPRIGGS, and Mr. FITZWILLIAMS discussed the case.

A Case of Mental Disturbance after Enteric Fever.—Dr. J. T. LEON showed a child, aged 11 years, who had suffered from mental disturbance after enteric fever.

The case was discussed by Dr. BATTEN.

A Case of Pemphigus.—Dr. C. CLAREMONT showed a case of pemphigus in a child.

The case was discussed by the CHAIRMAN and Dr. PERNET.

Two Cases of Mesenteric Cyst were shown by Mr. H. BURROWS.

The Treatment of Intussusception.—Mr. CHILDE opened a discussion on the treatment of intussusception in children. He outlined the diagnosis and laid emphasis on the importance of the presence of a tumour in the abdomen as a sign. He pointed out that this sign was practically always present, and that the only condition under which it was not found was when the condition had been present for some days and there was distension. In considering the treatment he pointed out that operation offered the only certain chance. Resection had given such bad results as to be hardly worth performing. He said that, while the results of reduction were good if performed within forty-eight hours of the onset, the results were hopeless after this time.

The discussion was continued by The CHAIRMAN, Mr. DOUGLAS DREW, Mr. FITZWILLIAMS, Mr. RIDOUT, Mr. MORGAN, Dr. SPRIGGS, Mr. LOCKHART MUMMERY, Mr. BURROWS, Mr. LETT, Dr. PERNET, and Drs. MIDLETON and MAYBRICK.

Mr. CHILDE replied.

A Case of Idiopathic Dilatation of the Colon.—Dr. CLAREMONT read the notes of a case of idiopathic dilatation of the colon.

The case was discussed by the CHAIRMAN, Mr. LOCKHART MUMMERY, Mr. DREW, and Mr. CHILDE.

Philadelphia Pediatric Society.

MEETING, May the 10th, 1910, J. TORRANCE RUGH, Vice-President, Chairman.

Anæmia with Greatly Enlarged Spleen.—Dr. ARTHUR NEWLIN showed two children with greatly enlarged spleens. The first was a boy, aged $2\frac{1}{2}$ years, in whom anæmia was noted after two suppurating swellings had appeared on the knee and one on the cheek, which healed without trouble. The parents are Russian Jews, both well, as was the child previously. The spleen extended from the eighth rib to two inches below the crest of the ilium, and over to the mid-abdominal line. Hæmoglobin was 25 per cent, erythrocytes 1,810,000, and leucocytes 18,400. Differential count gave 12·2 per cent. polymorphonuclears, 81·4 per cent. lymphocytes, 2·4 per cent. large mononuclears, 1·8 per cent. eosinophiles, and 2·2 per cent. myelocytes. One round worm was passed, though no ova or parasites could be found in the stools. The second case was an Italian girl, aged 3 years. Her spleen reached the mid-abdominal line, and the symphysis pubis, occupying the entire left side of the abdomen. Hæmoglobin was 30 per cent., erythrocytes 1,700,000, and leucocytes 71,800. Differential count

gave 42·8 per cent. polymorphonuclears, 20·8 per cent. lymphocytes, 4 per cent. large mononuclears, and 28 per cent. myelocytes. The child began to improve without treatment, and in ten months after first having been observed gave a normal percentage of the various sorts of leucocytes.

DR. ALFRED HAND, jun., showed two boys with anæmia and enlarged spleen, the elder being an instance of so-called splenic anæmia, the younger having a history of malaria, showing tremendous enlargement of the spleen. The elder, aged 3½ years, was admitted with broncho-pneumonia, having been ill two weeks; the lungs cleared up quickly, but enlargement of the spleen, 8 cm. below the costal border, persisted. On admission, March the 26th, examination of the blood gave hæmoglobin 35 per cent., erythrocytes 3,350,000, and leucocytes 5680. Differential count showed 3·3 per cent. myelocytes, 41·6 per cent. lymphocytes, 46·6 per cent. polynuclears, and 8·2 per cent. large mononuclears. On May the 10th hæmoglobin was 80 per cent., erythrocytes 4,200,000, and leucocytes 7100. The treatment was an organic iron preparation by mouth, but as improvement was slow, hypodermics were also given daily for several weeks of citrate of iron $\frac{3}{4}$ gr., sodium glycerophosphate 1½ gr., and sodium cacodylate $\frac{3}{4}$ gr. The second boy, aged 20 months, was born in New Jersey, and had chills and fever eight months ago, the plasmodium being found in the blood. It was also found on admission to the Children's Hospital five weeks ago, with a profound anæmia, 35 per cent. hæmoglobin and 3,000,000 erythrocytes, and now shows 50 per cent. hæmoglobin, and 3,500,000 erythrocytes. The spleen could not well be any larger in this patient, extending, as it does, into the right iliac fossa.

DR. A. A. ESHNER spoke of the first of those cases, which he had at first thought might be a case of pseudo-leukæmic anæmia of infants. Later, after examination of the blood, it appeared to be one of leukæmia. He remembered that a round worm was passed while the child was in the Polyclinic Hospital. The swellings on the lower extremity and the face might have been extravasations of blood, with secondary suppuration, or perhaps leukæmic accumulations.

DR. S. McC. HAMILL said that Dr. J. M. Swan had studied the stools in this case, but had never found any ova. An X-ray showed enlarged bronchial glands in this patient, who still has a high temperature, as she has had all along. A blood-culture was negative.

DR. THEODORE LE BOUTILLIER had had a case of supposed leukæmia in a child with a history of chronic malaria, in whose blood plasmodia were found, which explained the large spleen, reaching from the margin of the ribs to the crest of the ilium and to the median line. This child very recently had a return of the malaria, but without any great enlargement of the spleen. The child's condition has greatly improved.

DR. GIRTINGS said that Dr. Newlin's second patient exhibited the sudden transformation from a negative count to a well-marked myelocytosis, which is sometimes observed. One must not be thrown off guard by these remissions, in view of the fatal tendency which most of these cases sooner or later exhibit.

DR. NEWLIN added that a von Pirquet tuberculin test was applied in the first case, which was suggestive, but not absolutely positive. In the second case a Moro test was positive. No tuberculous pulmonary lesions were discovered. The improvement in the second case was entirely independent of treatment, as the child was brought to the hospital at rare and irregular intervals, and received medication in the form of the syrup of the iodide of iron only spasmodically. This case is evidently one of spleno-

myelogenous leukæmia, and is at present in the stage of remission. The first case, from the blood-counts, might possibly be one of lymphatic leukæmia.

Spasmus Nutans.—Dr. HOWARD K. HILL reviewed the literature upon spasmus nutans, or head-nodding with nystagmus in infants, beginning with reports by Ebert and Faber in 1850, and Henoeh and Bomberg in 1851, and especially the later papers by Hadden in 1890, Randnitz in 1897, J. Thomson in 1900, and Still. He showed three cases, from his service in the Children's Medical Dispensary of the Presbyterian Hospital, all of which presented signs of rickets. They began to show symptoms when respectively two and a half, ten, and twelve months of age. In all three symptoms began in the dark months of the year; two had lived in poorly lighted, dark rooms. In all three there was a nervous history and in one a distinct retrograde neurotic inheritance. There was no history in any case of a head injury. Two of the children held their heads in the position peculiar to this disorder and looked out of the corner of their eyes. The nystagmus seemed to outlive the head-nodding in two of the cases, in which the latter has almost disappeared.

Dr. HAMILL said that he had reported three such cases with Dr. Posey. The condition was found in children with rickets and after prolonged diarrhoea. Strabismus is not uncommon as a cause of nystagmus, and with these cases nodding or rotary spasm is often found.

The Infant's Thorax: Demonstration of Frozen Sections.—Drs. GEORGE FETTEROLF (by invitation) and J. CLAXTON GITTINGS read a paper and exhibited sections of frozen cadavers, illustrating some anatomic features of the infant's thorax and their practical application in physical diagnosis. They emphasise the fact that the mere opening of the thorax and abdomen in the anatomical laboratory or at autopsy will of itself cause a change in the shape and relation of the various organs. When conditions are still further disturbed by dissection or by successive stages of an autopsy, it is possible only to get an approximate idea of the conditions as they existed during life. A study of the sections corrected several anatomical misconceptions and explained the mechanism of certain clinical phenomena.

Dr. HAND said that this demonstration had been to him the most interesting that he had ever heard or seen at this Society. A formal vote of thanks was then extended to Drs. Fetterolf and Gittings for their excellent anatomical demonstration.

Provincial Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

May the 25th, 1910.

Dr. BYROM BRAMWELL, President, in the chair.

A Case of Diabetes Mellitus.—Dr. R. W. PHILIP showed a young girl suffering from diabetes mellitus, in whom the "massive saline" treatment

lately introduced in Paris had been adopted. For four periods, each not exceeding three days, and extending over six weeks, the patient drank nightly a bottle of "Hunyadi Janos" water, the diet during the period being limited to one pint of milk daily, well diluted. There was no excessive purgation. The sugar dropped immediately almost to zero, and sometimes actually to it, and then rose to a point much below the original standard. Symptoms of acidosis present before, acetone and diacetic acid in the urine, had entirely disappeared, and the patient had gained a stone in weight.

A Case after Nephrectomy for a Large Sarcoma.—Mr. D. WALLACE showed a child after nephrectomy for a large sarcoma, which had probably arisen in the suprarenal capsule.

A Case of Acute Osteomyelitis of the Spine.—Dr. A. MILES showed a boy, aged 10 years, suffering from acute osteomyelitis of the spine.

A Case of Chronic Osteomyelitis of the Femur.—Mr. G. L. CHIENE showed a man, aged 52 years, suffering from chronic osteomyelitis of the femur, which had commenced when the patient was about twelve years of age. Sinuses had opened intermittently ever since.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

May the 6th, 1910.

Dr. NEVILLE WOOD, President, in the chair.

Paper on Scarlet Fever.—Dr. F. G. CROOKSHANK insisted on the importance of recognising clinically the mixed infections and of differentiating between cases of pure scarlet fever of all grades of severity on the one hand, and, on the other, those associated with streptococcal, diphtherial, and rheumatic infections. Cases of so-called scarlatinal rheumatism were usually truly rheumatic in nature, and it was advantageous to treat all cases of scarlet fever with salicylate or salol in full doses from the first. This plan has been adopted at the Mortlake Isolation Hospital for several years with excellent results. Medical asepsis should be adopted in dealing with scarlet fever whether in private or hospital practice; it would do away with cross-infections, sub-infections, and "complications" due to secondary septic infection of varying nature.

Dr. NEVILLE WOOD thought that no case had been made out for the transference to a public or semi-public institution of patients able to command efficient nursing in their homes. He had never known infection to spread in such circumstances.

Mr. T. R. ATKINSON said that when acting as referee in the last smallpox epidemic it had never happened to him to see a case of smallpox which could have easily been mistaken for scarlet fever, but he had found difficulty when cases of measles were about. As to sequelæ, kidney troubles were the most to be dreaded.

Dr. E. A. SAUNDERS agreed with the probable identity of scarlatinal rheumatism and acute rheumatism.

Dr. G. S. HOVENDEN doubted if infection lasted six weeks in the absence of peeling and discharge from nose or ears, and hoped that at some future time a test as to infection would be evolved so that each case might be treated on its merits. He still believed in the advantage of inunction with eucalyptus oil.

Mr. BISHOP HARMAN asked if Dr. Crookshank had made any observations on the effects of scarlet fever upon the eyes of his patients. He discussed the recent work of Dr. Tarantus in Constantinople on what he had named "Kératite superficielle exanthématique." In the London County Council Blind Schools he had had patients who had lost their eyes from intercurrent inflammation when under treatment for scarlet fever.

Abstracts from Current Literature.

Medicine.

The estimation and quantitative significance of hydrochloric acid in the gastric contents (*Quart. Journ. of Med.*, October, 1909).—**W. H. Willcox**, in a paper on this subject, describes an analysis of the stomach contents in twenty-five children. He found that in congenital hypertrophic pyloric stenosis free hydrochloric acid was usually absent and the active hydrochloric acid much reduced. He considers that this is due to the marked gastritis present, because in two early cases where gastritis had not occurred free hydrochloric acid was present and the active hydrochloric acid normal in amount. In six cases of pyloric spasm in children without thickening of the pylorus the free hydrochloric acid was absent and the active hydrochloric acid about normal (between 0.1 and 0.2 per cent.). Marasmus in children was found to be associated with absence of free hydrochloric acid and a marked reduction of active hydrochloric acid in the gastric contents.

JAMES E. H. SAWYER (Birmingham).

The myopathies or muscular dystrophies (*Quart. Journ. of Med.*, April, 1910, p. 313).—**Frederick E. Batten** gives a critical review of the present standpoint of our knowledge with regard to the group of cases known under the title, "myopathy or muscular dystrophy." The following classification is suggested:

- (1) The simple atrophic type (Myatonia congenita or Myotonia congenita).
- (2) The pseudo-hypertrophic type.
- (3) The juvenile type (Erb).
- (4) The facio-scapulo-humeral type (Landouzy and Déjerine).
- (5) The distal type (Gowers).
- (6) The myotonia atrophica type.
- (7) Mixed and transitional types.

It is assumed that the characteristic features of the pseudo-hypertrophic, the juvenile, and the facio-scapulo-humeral types are well known.

The *simple atrophic type* has the following features: The disease is congenital or starts in early infancy, and is characterised by smallness, lack of

power, and loss of tone in all muscles of the body, without localised atrophy or hypertrophy of individual muscles or groups of muscles. All movements are capable of being formed, but in a feeble manner. The disease is but slowly progressive, for the child may, as development takes place, learn to sit up, and possibly to stand with support. As a rule these children never learn to walk, but adopt some strange method of getting about; the child will roll round and round in the long axis of the body in order to get from one part of the room to the other, or will assume a squatting attitude, to which the name "frog-child" was originally applied by Dr. Head.

Closely allied to this condition is that described by Oppenheim under the title "myatonia congenita," which is characterised by an extreme flaccidity of the muscles associated with the entire loss of the deep reflexes, usually most marked at time of birth, and always showing a tendency to slow and progressive amelioration. There is great weakness, but no absolute paralysis of any muscle. The limbs are most affected; the face is almost always exempt. The muscles are small and soft, but there is no local wasting. Contractures are prone to occur. It is claimed that this condition is clinically quite distinct from, and has not been proved to be associated with, the myopathies on the following grounds:

- (1) The myopathies are familial diseases, whereas myatonia is not.
- (2) Several types of myopathy often show familial relationship, whereas no case of myatonia has been reported in the myopathic family.
- (3) In myatonia the condition is usually obvious at birth, whereas myopathy is never present at birth nor reaches its maximum in a few days.
- (4) The characteristic muscular flaccidity is not present in myopathy.
- (5) Myopathy is characterised by local muscular wasting, which is not present in myatonia.
- (6) Course—myopathy, progressive muscular weakness, myatonia, progressive amelioration.
- (7) Return of deep reflexes has been recorded in myatonia, never in myopathy.

The distal type.—The characteristic features are the weakness and atrophy of distal muscles, while the proximal muscles remain well developed. Although the condition was originally described by Gowers, yet its full recognition and its separation from the peroneal or neuritic muscular atrophy is due to Spiller.

Myotonia atrophica.—This is characterised by the rare association of muscular atrophy with a slow relaxation of muscles after voluntary contraction. This is the characteristic feature of myotonia congenita (Thomson's disease).

The second part of this review deals with the question, "Can recovery or arrest of disease take place in cases of myopathy?" It seems that there is little doubt that some cases of myopathy become arrested, but that it is very doubtful that one ever becomes cured.

As regards the morbid anatomy, it is generally recognised that in most cases no change can be found in the nervous system, but that the muscles show various degrees of atrophy and fibrosis. Changes, however, have been found in the spinal cord in a certain number of cases of muscular dystrophy, and consist of a considerable diminution in the number of cells of the chief groups of the ventral horns, and a corresponding atrophy and diminution in the number of fibres in the ventral roots, and in many bundles of the nerve-trunks.

Myopathies or muscular dystrophies must be regarded as a whole, and

though for clinical purposes it is convenient to separate them into types, yet there is no hard and fast line of distinction between one type and another.

JAMES E. H. SAWYER (Birmingham).

Dental school clinics ('*Med. Corr. Blatt des Württ. ärzt. Landesvereins*, October 26, 1907).—The Committee of the German Clinic for School Hygiene points out that dental caries is the most widespread disease among the children, that it interferes with the child's development and is a factor in infectious diseases. The systematic treatment of this disease can only be properly undertaken in school clinics. These must be established in all towns under the direction of school dentists. Small rural districts must combine and pay a school dentist. The systematic treatment of the teeth is the most effective means for the prevention of infectious diseases, including tuberculosis.

M. D. EDER.

A case of so-called congenital elevation of the shoulder-blade ('*Allg. Wien. med. Zeit.*, February 25, 1908).—Mautner and Selka report this abnormality in a suckling, aged 3 months. The paternal grandmother was an epileptic; the father's ear-lobes were wanting, which defect is foreshadowed in the child. The left scapula is twisted around three axes: (1) the sagittal, inwards with elevation of the inferior angle; (2) the vertical; and (3) the frontal, twisting the scapula nearer the clavicle. The supraspinatus fossa is ill-developed and flat. A skiagram showed the left neck and shoulder line to be shorter and steeper than the right; both clavicles have normal curves and are on the same level.

M. D. EDER.

Epidermolysis bullosa hereditaria (*Viennese Society for Medicine and Pediatrics*), ('*Wien. klin. Rundschau*, March 15, 1908).—Leiner showed a boy, aged 10 years, with this disease, from which he had suffered since the first few weeks after birth. He was constantly subject to either severe or mild outbreaks, especially on the soles, palms and extensor surfaces of the limbs. The nails were brittle, bent, and those of the second and third fingers of the left hand much stunted. A sister of the patient is a like sufferer.

M. D. EDER.

A case of juvenile general paralysis ('*Intercol. Med. Journ.*, February 20, 1908).—Cole and Stephens report this case by reason of its extreme rarity in Victoria. The child was aged 10 years, with the intellect of four or five and the general aspect of infantilism; the discs suggested optic atrophy. Later the gait became spastic, Romberg's sign was present, and twelve months later he had reached the paralytic stage. There was a history of paternal syphilis; the mother had suckled this and another syphilitic child without herself showing any signs of disease.

M. D. EDER.

The results of photometric examinations in schools ('*Prague Med. Wochens.*, March 26, 1908).—Quirsfeld, after daily examinations carried on throughout the entire year under all sorts of atmospheric conditions, makes the following recommendations, amongst others, for school buildings. The school-room should face N., N.E., or N.W.; the windows should be large and the ratio of glass area 1:5, the pillars of the windows narrow and the smallest possible quantity of wood-work in the windows; the curtains should be light grey and transparent, so that only the direct sunlight is kept out; the walls should be white or grey and all objects to be

kept as far away as possible from them; no plants to be allowed in the windows.

M. D. EDER.

Double irido-choroiditis of influenzal origin (*'La Medecina de los Niños,' February, 1908*).—**Sarabia** reports the case of a child, aged 14 months, who the eighth day after an attack of influenza was noticed to have a serous exudation in the anterior chambers of both eyes. This was found to proceed from a double iritis with abundant plastic exudation, which filled the pupillary region, the anterior surface of the iris, and part of the anterior chamber. The pupils were contracted, lachrymation extreme, and the surrounding irrigation very deep. It was impossible to determine the vision, but it was certain that the child only perceived light. After five weeks' treatment there was a re-absorption of the exudation, and it was then found that the ciliary processes and the choroid coats had been likewise affected. Mydriatics were cautiously continued and sodium iodide for the next three weeks. The condition of the eyes was then as follows: Both pupils dilated and immobile, but no exudation present, the iris discoloured and atrophied, the anterior chamber transparent and shallower than normal, tension of the eye normal. The lens was yellowish-white and the fundus a mass of choroidal exudations.

M. D. EDER.

Cirrhosis of liver in children, with special reference to its ætiology (*'Wien. klin. Rundschau,' January 19, 26, February 2, 9, 16*).—**Pexa** discusses in some detail the various causes of this disease; his classification is partly clinical, partly pathological. Since it is a disease rarely seen among children he considers all cases deserve careful recognition. During fourteen years of the clinic for children in Prague, among 4604 children there were but five cases of cirrhosis clinically observed. He describes two of these cases in full: one, a male child, aged 14 months, with cirrhosis atrophica toxinfeciosa (tuberculous dyspeptus); the mother was suffering from pulmonary tuberculosis. The child was jaundiced with an enormous spleen and free fluid in the abdomen. Death nineteen days after reception in hospital. The full report of the post-mortem is given. The liver was atrophic with cholestasis of right lobe; histologically interstitial hepatitis. The second case was one of atrophic biliary cirrhosis in a boy, aged 11 years, who had been suffering from ill-health some months before jaundice set in. Death occurred some six months later; clinically it was a typical case of hepatic cirrhosis, and this was confirmed at the post-mortem. The cause of this disease it was impossible to determine; it must be ascribed to some form of toxæmia, but it was not alcohol. It was not a form of Hanot's disease since the liver was not enlarged.

M. D. EDER.

The infectiousness and contagiousity of acute poliomyelitis (*'New York State Journ. of Med.,' 1909, p. 484*).—**Le Grand Kerr**.—Out of sixty-five personal cases the writer found only one instance in which more than one in a family were affected. He concludes that there is no familial susceptibility, but rather an individual susceptibility due to local malnutrition, exhaustion, and nerve impairment. The influence of previous diseases is negative. On the other hand, the susceptibility is affected by age, as sixty of the cases were less than three years old.

J. D. ROLLESTON.

Cholelithiasis in a child (*'Med. Klinik,' 1909, p. 14*).—**W. Stoeltzner**.—A boy, aged 7½ years, who had had no illness except diphtheria two

years previously, was admitted to hospital for jaundice. The liver was enlarged and tender, the urine contained bile, and the stools were clay-coloured. Ten days after the onset the symptoms disappeared. A week later he had an attack of abdominal pain, and the following morning passed a stool containing about twenty small stones. Some more stones were found in the stools three days afterwards. No further attacks occurred. The stones were found to consist of cholesterin. J. D. ROLLESTON.

Embryonal adeno-sarcoma of the kidney (*Arch. of Pediat.*, xxvi, 1909, p. 824).—**Martha Wollstein** has collected 106 cases from literature, sixty of which occurred in the first four years of life, ten in the fifth year, twenty between five and thirteen, and seven in adults. The majority are found in one kidney only, and are situated at either pole or in the centre. They are usually encapsuled. The present case occurred in a boy, aged 2 years and 2 months, admitted to hospital for a hard, painless, movable mass which entirely filled the left iliac region. The left kidney and tumour were removed. Four months later nodules were observed in the operation scar. Six months after the first operation a second was performed, at which an inoperable retro-peritoneal tumour was found. Death preceded by a convulsion took place two weeks later. The autopsy showed infiltration of the abdominal wall, multiple secondary abdominal tumours, and metastases in both lungs. The other organs were free. J. D. ROLLESTON.

Spasmodic stricture of the œsophagus (*Arch. of Pediat.*, xxvi, 1909, p. 734).—**L. E. La Fetra**.—Numerous cases of cicatricial stricture of the œsophagus in children have been recorded (*vide BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1909, p. 432), but spasmodic stenosis has hitherto been confined to adults and older children. The present case is that of a girl, aged 16 months, who used to vomit while food was being taken, seldom afterwards. When being fed she would put her left hand down her throat and bring up a large quantity of mucus and food. The vomiting was worse when she was excited. When her attention was diverted she would keep her food down. The passage of a stomach-tube showed an obstruction at the lower end of the œsophagus. The spasmodic nature of the stenosis was proved by the X rays, which showed that the food in which bismuth subcarbonate had been mixed passed entirely through the œsophagus without leaving any residue at the point of obstruction. Improvement occurred under codeine and afterwards with tincture of belladonna, which was given both to check the secretion of mucus and to relax the spasm.

J. D. ROLLESTON.

Casein curds in infants' stools (*Arch. of Pediat.*, xxvi, 1909, p. 919).—**F. B. Talbot**, in reply to an article by Meyer and Leopold, states that they have not discriminated between the two kinds of curds, but have classed together both the casein and the fat curds under the term of "so-called casein masses." The fat curds are small, soft, and white, the casein curds large and tough, and never appear in the stools of infants taking a casein-free diet. J. D. ROLLESTON.

The association of varicella with scarlet fever (*Thèses de Paris*, 1909-10, No. 123).—**E. Rousset**.—The thesis is based on twenty cases of varicella which occurred in Hutinel's scarlet fever block at the Hôpital des Enfants Malades. The following are the principal conclusions: (1) Vari-

cella occurring in the course of scarlet fever has an unusually long incubation period. (2) The eruption and fever of varicella are usually more intense in convalescence from scarlet fever than in previously healthy persons, and are apt to be especially severe when the two exanthemata are contemporaneous. (3) Suppuration of the pocks is unusually frequent when the two diseases are associated. (4) Renal complications are not more frequent than in uncomplicated varicella. In only a third of the cases was a slight and transient albuminuria noted. (5) The cerebro-spinal fluid shows no changes, as it sometimes does in the erythemata met with in children. (6) The prognosis is good.

J. D. ROLLESTON.

Meningism (*'Arch. of Pediat.,'* xxvii, 1910, p. 10).—**Langley Porter**.—This word was coined by Dupré in 1894 to describe a clinical picture resembling true meningitis, but unaccompanied by demonstrable changes in the meninges and tending to rapid and complete recovery on disappearance of the toxæmia, which is almost invariably the cause of the condition. Meningism is often met with in pneumonia, typhoid fever, rheumatism, malaria, diphtheria and the exanthemata, especially measles. Diagnosis must be made by blood-counts and lumbar puncture, the cerebro-spinal fluid in meningism being clear and escaping at normal pressure. Porter recommends subcutaneous injection of normal saline solution as treatment, since it helps both kidney and gut to excrete the toxins. Six illustrative cases are recorded in children, aged from five months to eight years, suffering from typhoid fever, congenital syphilis, broncho-pneumonia, and pulmonary tuberculosis.

J. D. ROLLESTON.

Congenital stenosis of the duodenum (*'Arch. of Pediat.,'* xxvii, 1910, p. 37).—**R. G. Freeman**.—In this rare condition, of which only sixty-three cases, including the present one, have been recorded, the symptoms are similar to those of congenital hypertrophic stenosis (*vide BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1908, p. 127). A primipara gave birth to a male child, which showed no symptoms for the first twenty-four hours, but vomited dark brown fluid on the second day. On the third day there was no vomiting, but jaundice developed. On the fourth vomiting recurred, and continued until death on the tenth day. Some light yellow material was found in the motions, which seemed to indicate that milk had passed into the lower bowel. No operation was performed. At the autopsy the stomach and upper portion of the duodenum were found to be dilated. The duodenum near the stricture was firmly bound down by deeply bile-stained adhesions.

J. D. ROLLESTON.

Malignant diphtheria (*'Thèses de Paris,'* 1909–1910, No. 191).—**A. Casses**.—Malignant diphtheria is characterised clinically by the following symptoms: (a) Circulatory troubles, such as arterial hypotension, tachycardia, paralytic dilatation of the heart, tendency to collapse, syncope, and sudden death; (b) digestive troubles, such as anorexia, vomiting, and in exceptional cases, abdominal pain; (c) nervous troubles, such as asthenia and local or generalised paralyses; (d) constitutional disturbance shown by pallor, prostration, and modifications of the temperature, hyperthermia being followed by hypothermia. These symptoms exactly correspond to experimental or spontaneous supra-renal insufficiency. The pathogeny of malignant diphtheria is therefore best explained by the theory of supra-renal insufficiency. Treatment should consist in the injection of large doses of

antitoxin and the administration of adrenalin. Five illustrative cases are recorded.
J. D. ROLLESTON.

Congenital heart disease (*Montreal Med. News,* April, 1908).—**Abbot**, in the study of the reports of a large number of necropsies of cases of congenital heart disease, has found the proportions of the different varieties as follows: (1) Localised defects of the inter-auricular septum, 28 cases; (2) localised defects of the interventricular septum, 40 cases; (3) complete defects of the cardiac septa, 12 cases; (4) complete defects of the aortic septum, 14 cases, including 8 cases of persistent arterial trunk and 8 cases of communications between the aorta and pulmonary artery; (5) Transposition of the arterial trunks, 47 cases; (6) congenital pulmonary stenosis, 75 cases, 7 with closed septa, 9 with patent foramen ovale, and 59 with defect of the interventricular septum; (7) congenital pulmonary atresia, 28 cases, 17 with defect of the interventricular septum; (8) aorta, stenosis, 8 cases; (9) tricuspid stenosis, 9 cases; (10) patent ductus arteriosus, 19 cases; (11) coarctation of the aorta, 32 cases, 5 of the infantile and 27 of the adult type; (12) hypoplasia of the aorta, 2 cases. Cyanosis was most marked in pulmonary stenosis, and of transposition, and usually absent in coarctation of the aorta and patency of the duct.

J. PORTER PARKINSON.

The bacteriology of perleche (*Journ. de med. de Bord.,* May, 1908).—**Auché** describes the onset of this condition as an alteration of the epidermis of the labial commissures, which become white, as if macerated, above and below the commissural fold; a fissure appears, and the irritation causes constant licking, which has given the name to it. Cultivation has shown the constant presence of the *Streptococcus pyogenes* and often of *Staphylococcus cereus albus*, sometimes pure and sometimes associated with the *Staphylococcus aureus*, the latter only playing a secondary rôle. Sometimes the *Staphylococcus albus* can be found, but never without the first-named organism. The author considers that the facts show that the *Staphylococcus pyogenes*, which is found in all the cultures, is the true cause and the others are merely secondary infections. These results are the outcome of bacteriological examination of the successive cases.

J. PORTER PARKINSON.

The condition of the gums in measles (*Practitioner,* August, 1908, p. 326).—**Tylecote**.—The recognition of Koplik's spots has proved a difficulty to many practitioners, and Dr. Frank E. Tylecote brings forward another diagnostic sign in measles, namely, a definite injection of the gums. This appears two or three days before the rash, and may persist until the rash is beginning to fade. It is in marked contrast to the normal pink appearance of the gums, which is also present in scarlet fever, rubella, and influenza. It is easily recognised by natural or artificial light. In an epidemic of fifty cases of measles he found a well-marked marginal ulcerative gingivitis as a complication in 60 per cent. of the cases in the third week.

G. A. SUTHERLAND.

Pneumococcal peritonitis (*Practitioner,* September, 1908, p. 462).—**Reginald F. Jowers** relates a case of this affection in a previously healthy girl, aged 14 years. The illness began with what was apparently an attack of mild follicular tonsillitis. On the third day she was seized with violent

abdominal pains, accompanied by diarrhœa and tenesmus. Peritonitis was diagnosed and laparotomy was performed, the expectation being that a diseased appendix would be found. A quantity of odourless pus was removed, and the only lesion discovered was a distended right Fallopian tube and swollen ovary. These were removed. A pure culture of the pneumococcus was obtained from both the inside and the outside of the tube. Pane's anti-pneumococcal serum (20 c.c.) was injected on two subsequent occasions, and later a vaccine prepared from the pneumococci found. The patient's condition was grave for some time and pyrexia persisted for five weeks, but ultimately complete recovery ensued. Mr. Jowers discusses, in connection with this case, the modes of origin of pneumococcal peritonitis, namely—(1) general blood infection, (2) intestinal infection, and (3) vaginal infection. As regards the last of these, the illness followed immediately on a menstrual period, and the tube removed showed evidence of acute salpingitis, but on the other hand there had been no vaginal discharge before or during the illness. There was no reason to suspect intestinal infection. It is suggested that the tonsil was the primary source of infection, and that the pneumococci passing into the blood had attacked the Fallopian tube at the menstrual period, and from there infected the general peritoneal cavity.

G. A. SUTHERLAND.

The clinical aspects of anaphylaxis (*La Clin. Infant.*, March 1, 1910, No. 5, p. 142).—**E. Lesné**, in the course of a paper on this subject, describes a case of anaphylaxis to ovo-albumin. A girl, aged 8 years, brought up on the breast, tolerated eggs well until seven years old, although from time to time she had had urticaria, or unilateral œdema of the eyelids or face. A year ago she was suddenly seized at the commencement of her mid-day meal with severe abdominal pain; she became pallid and had copious diarrhœa; then the pains disappeared and she went on with her meal. The same symptoms were repeated at the same time on following days. Meat and wine were excluded from the dietary, and as the trouble persisted it was attributed to the egg which always formed part of the mid-day meal. As soon as it was omitted the pains immediately disappeared. No further symptoms occurred until she partook of a dish containing a very small quantity of egg; after the ingestion of the first spoonful abdominal pains and vomiting supervened. Gastric intolerance was absolute, and during forty-eight hours the child vomited even spoonfuls of iced water. The tongue was red and dry, the face drawn; there was wasting and extreme feebleness. Temperature varied between 36·2 and 36·5° C., pulse 140 and thready. Urine scanty, albuminous, and contained acetone. After a period of diarrhœa there was constipation with enlarged liver. Treatment consisted of hot packs, saline injections, and lavage. In certain cases milk may produce similar effects. There are infants brought up on the bottle who have for some time tolerated cow's milk, then one day intolerance makes its appearance, and afterwards the least quantity causes vomiting, diarrhœa, and phenomena of collapse. Hutinel has recently attributed such cases to anaphylaxis, and this lactic anaphylaxis is often satisfactorily dealt with by substituting butter-milk or whey, and Besredka has shown that in guinea-pigs whey has no anaphylactic properties, but that it vaccinates against the accidents of lactic anaphylaxis. Clinically anaphylaxis by ingestion shows itself under two aspects: (1) Phenomena of slight intoxication, digestive troubles, urticaria, and trophulus, localised œdemas allied to Quincke's disease; (2) phenomena of severe intoxication, abdominal pain, vomiting

with constipation or diarrhoea, choleraic symptoms, with fever or more often hypothermia, diminution of arterial pressure, and collapse. This last form has a strong resemblance to the affection known as periodic vomiting of childhood, which, according to the author, may in a great number of cases be attributable to anaphylaxis.

VINCENT DICKINSON.

Pigmentary patches and spina bifida (*La Clin. Infant.*, April 15, 1910, No. 8, p. 238).—**A. da Costa Ferreira** draws attention to the hypothesis that certain pigmented patches observed in Bulgarian infants are due to abnormalities in the closure of the vertebral column, and constitute, so to speak, the transitory remains of an abnormality of which the maximum degree is represented by spina bifida. The author described in the *Bulletin de la Soc. d'Anthrop. de Paris*, 1908, the case of an idiot with blue dorso-sacro-lumbar patches which he called "taches mongoliques," and which he considered to be, not racial stigmata, but rather a dystrophy perhaps due to a spirillosis of the mother. He now reports that the mother afterwards gave birth to an eight months foetus who had a sessile spina bifida with rectal prolapse and double club-foot. It may be that these pigmentary patches are not abnormalities of the closure of the vertebral column, but they are certainly abnormalities of evolution analogous to them. The blue patches represent a type of "inferior pigmentation," the skin pigmentation represented perhaps ordinarily in an intra-uterine foetal phase by cells which habitually disappear, and which do not become evident in new-born Europeans except in the course of an arrest or disturbance of evolution. In the presence of a case so striking and complete as the author's, it must be admitted that in our races these spots, especially when they present an extensive area, have a definite significance as dystrophic stigmata and not as racial stigmata, *i. e.* they are disturbances of evolution, just as is spina bifida.

VINCENT DICKINSON.

Infantile scurvy involving the hip-joint (*New York Med. Journ.*, December 4, 1909).—**Jacobsen** reports two cases of this condition. The first was a boy, about a year old, who had been brought up on a patent food. He had always been weak and was pale and fretful, while for several months there had been repeated bleedings from the gums and bowel. One day he fell from a chair, striking his left hip and thigh. There was no sign of injury afterwards, but the leg could not be moved or even touched without causing great pain. The limb was held in a flexed position, but there was no wasting and no alteration in the buttocks or in the gluteal folds. The gums were spongy and bled easily. Recognising the condition as one of scurvy the dietary was changed and extension applied to the limb. Immediate improvement followed and the child soon recovered. The other case was also a boy who showed evidence of marked pain in both lower extremities, especially in the right. While both hip-joints were affected there was also some disturbance in the knees. Any attempt at movement caused him to cry out. There was no swelling or obvious change about the knee-joints, and no signs of hip-joint disease. There had been frequent epistaxis for about six months and also hæmorrhage from the gums, which were swollen and spongy. The child was being fed on peptogenic milk-powder, but after a change in his dietary and without any medication or attention to the local condition he improved at once, and within a week was free from pain.

T. R. WHIPHAM.

Pathology.

Experimental epidemic poliomyelitis (*Arch. of Pediat.*, xxvii, 1910, p. 93).—**Simon Flexner** and **Paul Lewis**.—The first successful inoculations of monkeys with spinal cords from fatal cases of poliomyelitis were made by Landsteiner and Popper in May, 1909. The injections were made into the peritoneal cavity. One monkey became paralysed in the lower limbs, and died on the sixth day after inoculation; the other was killed on the nineteenth day. In both lesions of the spinal cord, similar to those in man, were found. The disease could not be transferred to other monkeys. Since September, 1909, Flexner and Lewis have successfully inoculated monkeys with the virus of poliomyelitis by intra-cerebral, intra-peritoneal, subcutaneous, and intra-neural injections, and transmitted the virus through eight series of monkeys. Characteristic naked-eye and microscopical lesions were found in the cord of the affected monkeys. Experimental poliomyelitis is a severe disease, as 40 per cent. of the cases were fatal. When recovery occurs residues of paralysis persist, as in the human subject. The writers failed to discover, either in film preparations or in cultures, bacteria or protozoa which could account for the infection, but their experiments proved that the infective agent of poliomyelitis belongs to the class of minute and filterable viruses which have not been hitherto demonstrated by the microscope. A study of the degree of resistance of the virus showed that the virulence of a human spinal cord from a case of poliomyelitis is retained after being frozen for forty days, and that the spinal cord of an infected monkey still transmits the disease after being suspended seven days over caustic potash. Inoculation experiments proved that the virus was contained not only in the spinal cord and brain but in the blood, lymphatic glands, cerebro-spinal fluid and naso-pharyngeal mucosa. As regards immunity to re-infection, it was found that monkeys which had recovered did not react to re-inoculation, while control animals were paralysed. Inoculation of other animals besides monkeys was unsuccessful.

J. D. ROLLESTON.

Therapeutics.

The great value of collargol in infantile dysentery (*Brazil Medico*, December 22, 1907, to February 1, 1908).—**Moncorvo, Filho** and **Pires** have used this remedy for the past three years and strongly recommended it in the form of lavage. They commence with a 1 or 2 per 1000 solution, increasing that strength, if necessary, to 5 per mil. It is desirable to irrigate the bowel first with sterilised or plain boiled water, and then to employ the collargol solution. But of 34 cases, nearly all of which were very severe, they report 28 complete cures, 3 improved, 2 deaths. Many cases which were seemingly hopeless recovered in forty-eight hours; in others several days were required before a cure was effected.

M. D. EDER.

On the internal administration of protargol in children's diseases (*Allg. Wien. med. Zeit.*, February 18, 1908).—**Hesky**, after emphasising the advice given by the makers that solutions of protargol must be prepared with cold water, states that he used it in 15 cases; at first in cases of simple dyspepsia with vomiting in breast or bottle babies. The results were so uniformly admirable that he next employed it in severe cases of intestinal catarrh of sucklings with good results. In one case a baby, aged 2½ months,

reared on artificial foods, was, when first seen, in a terrible condition of marasmus, with 20 to 30 stools daily. Careful alterations in diet effected nothing until protargol was administered. Vomiting ceased after third dose; the stools soon lost their foul colour and were reduced to six daily. The child was so atrophied that it was not possible to save it. The doses advised are: in the first eight weeks employ a solution of 1 in 5000 to 1 in 500, giving a teaspoonful ten to fifteen minutes before each feeding. Children take it without trouble and the writer never saw any ill-results. Sometimes a little sodium bicarbonate seems to be useful after the feeding. In older children a solution of 1 in 500 can be given. Neumann has warmly recommended this drug in similar cases.

M. D. EDER.

Marpmann's scarlatinal serum (*Allgemeine Wiener medizin. Zeitung.*, January 14, 1908).—**Monti** states that this serum seems a useful and reliable prophylactic for "contacts." Two hundred observations have been made in which it has been so used; only two cases of scarlatina occurred among them. The attacks were severe but both recovered. The number of observations is too few to pronounce judgment. As soon as it has been found to be absolutely harmless and the observations remain hopeful he will use it on a large scale.

M. D. EDER.

Treatment of infantile paralysis (*La Clin. Infant.*, April 1, No. 7, p. 222).—**Dr. Laquerrière** lays down the following: (1) At the onset during the febrile stage one remedy alone is of service—hydrotherapy practised under the form either of tepid baths or refrigeration of the vertebral column by a bag applied to it. (2) In the succeeding weeks after the cessation of the fever, when the paralysis, at first general, becomes spontaneously localised to certain muscles, all fatigue and worry must be avoided so as to allow the medullary cells, which are simply inhibited, to recover their function, and so as not to over-work muscles which will recover by themselves. At this stage hydrotherapy in the form of warm or tepid baths, especially salt ones, and electricity by means of the constant current applied gradually, possess at the same time a tonic and sedative action which demands their employment to the exclusion of any other procedure. (3) In the stage of slow retrogression there is no fear of lighting up the medullary process, as the lesions are established and circumscribed. The general health must be attended to; sea or mountain air, warm salt baths, sea baths, sun baths, are the most powerful means of toning the organism. The nutrition of the affected limbs must be acted on by massage, passive movements, douches, the constant current, one pole on the limb and the other on the vertebral column. Articular deformities must be attended to by manual treatment, mechanico-therapy, and careful watching for faulty attitudes. Motility must be encouraged by electricity, gymnastics being rarely available for the wasted and weak muscles. (4) In the last stage, that is, three or four years after the onset, the muscles which have completely or partially recovered should be re-educated by simple or electrical means. Deformed articulations must be subjected to mechanico-therapy by orthopædic apparatus or surgical means. Muscles still affected must be still subjected to electrical treatment or transplantation of tendons. (5) This treatment should be commenced as soon as possible; infants thus treated in the first weeks escape the worse consequences of the disease. But even a late commencement may be followed by considerable success.

VINCENT DICKINSON.

Surgery.

Intussusception (*Boston Med. and Surg. Journ.*, April, 1908).—**Stone** reviews some of the recent literature. Treves says: "The general mortality of the disease is 70 per cent., and 80 per cent. die before the seventh day. If laparotomy be done at all, therefore, it should be performed within the first forty-eight hours, and if possible within the first twenty-four hours." Fitz, in 1889, fifty-one cases treated medically with a mortality of 69 per cent., while of thirty-six cases treated surgically the mortality was eighty per cent. The latest American text-books teach that laparotomy is only to be undertaken as a last resort. In England strong opinions have been expressed in favour of immediate laparotomy, by Edmund Owen, Pitts, Power, Eccles, Tubby and others. Recently Clubbe, of Sidney, has advocated preliminary irrigation by injections of warm oil on the ground that it reduces the intussusception to a certain extent in the best and gentlest way, and so lessens the shock of the coming operation. His total number of cases is 144, and of these 14 were reduced by injections, that is, 10 per cent.; 124 were treated by laparotomy, 84 being cured and 40 being fatal. His later results have shown much improvement over the earlier ones, partly no doubt owing to increased skill, but partly to operating earlier after the onset of the symptoms. Great stress therefore should be laid on an early diagnosis.

J. PORTER PARKINSON.

Pulled elbow (*The Postgrad.*, February, 1908).—**Heckmann** says this lesion is usually caused in children under five years being suddenly grasped by the hand or forearm to save it from falling. The child begins to cry, and the affected arm, presumably paralysed, hangs down, with the forearm slightly flexed, and the hand pronated, the posture resembling that in fractured clavicle. There is pain and inability to supinate the hand, and the upper arm cannot be elevated freely. There are no symptoms of fracture or dislocation, but sometimes there is pain on pressure over the head of the radius, and some separation between it and the lower end of the humerus. If untreated the symptoms disappear in a week or two, but if the forearm is forcibly extended and supinated the child is instantly cured. Goyrand, who first described the condition, considered there was a subluxation or partial dislocation of the cartilage of the distal radio-ulnar articulation. Others thought it was due to a compression of the interosseous membrane or soft parts between the two bones of the forearm during sudden pronation. Others, again, thought there was a partial dislocation of the head of the radius, which is easily produced in a child owing to its small size and the weakness of its ligaments. Skiagraphy has not solved the question. Girls are much more often affected than boys, owing to their muscles and ligaments being weaker. The lesion is apt to recur in the same patient, and this speaks strongly in favour of treatment that weakness of muscles and ligaments is the chief factor in its production.

J. PORTER PARKINSON.

Subcutaneous treatment of hernia in children (*Glasgow Med. Journ.*, December, 1909).—**Faulds** recommends the following treatment of hernia in children in cases where the relation of the parts can be clearly defined by palpation. The usual preparations for an anæsthetic are carried out, and the skin is sterilised as for the ordinary operation. The surgeon then reduces the hernia and inserts his left forefinger into the inguinal canal,

by invaginating the scrotum, and feels both pillars of the ring. The size of the opening is thus determined and an estimation made of the number of stitches necessary to occlude it. Seldom more than two stitches, and often only one, is required. A strong, curved needle, threaded with a stout silk ligature, is pushed through the skin about the top of the opening and guided by the forefinger through one pillar of the ring to the other, which it pierces in the opposite direction. The point of the needle is then brought out through the skin, re-introduced through the point of exit, and made to traverse the subcutaneous fat in the direction of the long axis of the canal. The second pillar is again transfixed at a lower level and the needle point guided across to the first pillar, which is again pierced, thence up in the subcutaneous fat to the original point of entrance, through which it is made to emerge. The opening of the canal is thus occluded by drawing the purse-string inserted in this manner. At first the skin and subcutaneous tissues are puckered together, but by a little manipulation with forceps the skin and subcutaneous fat can be freed and the ligature tied firmly on the ring. By lifting the skin at the point of entrance with a pair of forceps the knot is submerged and no trace of the operation is left after a few days. In this way the canal is closed and the two surfaces of the sac are brought into apposition, room, of course, being left for the spermatic cord.

T. R. WHIPHAM.

Treatment of fracture of the femur in the new-born (*Münch. med. Wochens.*, November 16, 1909).—**Zancarini** describes a simple method for the treatment of obstetric fracture of the femur. The leg is flexed upon the body as in the foetal position, the front of the thigh lying along the front of the abdomen, and the foot reaching to the shoulder where the clavicle acts as a support. The trunk is protected with cotton-wool and a broad bandage is passed round the leg and trunk, securely fixing the former. This position is readily borne by the infant and aids in keeping the child clean. The leg is fixed in this way for about twenty days, the bandage being removed daily and light massage applied. The author describes cases several years after the fracture has been treated in this way. The limbs show no trace of injury, not even in a skiagram, and the gait is normal.

T. R. WHIPHAM.

Review of Book.

THE MEDICAL ANNUAL, 1910. A Year-Book of Treatment and Practitioner's Index. Twenty-eighth issue. Bristol: Messrs. John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd.

THE editor points out in the preface of this useful annual that a large amount of careful and detailed work has been accomplished in almost every department of medical knowledge, and says that the work of condensation becomes more difficult in consequence but renders the necessity for it much greater. The twenty-eighth issue is a most representative volume in this way, and there is hardly any progress in treatment of importance which has not been dealt with in its pages. Most of the articles in the volume treat with matters which have become generally accepted, and place

them in a concise form so that their main features can be readily understood. By means of this book the practitioner of medicine can keep himself conversant with all the important advancements that are made in medicine and surgery, in diseases of children, and in the other special branches of his profession.

Although most of the articles deal with subjects the work upon which has been confirmed and become accepted, yet there are a few contributions in which this is not so, and the one which is most suggestive and important for those interested in diseases of children is the paper on the treatment of certain affections by the injection of sea-water. This article is written by Dr. Robert-Simon, member of the Therapeutic Society of Paris, and he has recorded by the means of numerous illustrations some of the results of this form of treatment. He considers that in sea-water we have a plasma which will supply the protoplasmic cells with something, the lack of which causes certain chronic diseases, and he claims that by the injection of sea-water plasma we have a means for detoxicating the living body. Startling results seem to be obtained by this means of treatment in infants, wasted to the last extreme, and having vomited everything for weeks, for in 80 per cent. of the cases, after the first injection, the children began to show signs of improvement. The results are so marvellous that we consider this means of treatment should be given an extensive trial, and if the results can be confirmed, then the most important therapeutic means of recent years has been discovered. This form of treatment has also had satisfactory results in certain gastro-intestinal disorders of adults, in anæmia and chlorosis, and in some diseases of the skin.

In the article on congenital malformations of the heart a great omission occurs in that no reference is made to the Wightman Lecture of 1909, by the late Dr. George Carpenter. That lecture brought our knowledge of congenital cardiac affections so completely up to date, and contained such a large amount of valuable information as regards the differential diagnosis of these various lesions, that no paper on the subject can be considered complete without reference to it.

The article by Professor G. F. Still on "Infant Feeding" is a very valuable contribution, and in it is emphasised the fact that the proper condition of milk for all feeding purposes, and especially for the feeding of infants and young children, is *not* that it should be sterilised or preserved, but that it should be *clean* and require neither sterilisation nor to be "preserved indefinitely." Another article by the same author on the treatment of enuresis contains many useful and practical points, and in it reference is made to the curative influence of thyroid extract. There are other articles by Professor G. F. Still which deal with the treatment of infantile diarrhoea, infantile convulsions, pertussis, rickets, and congenital syphilis. Among other valuable papers by Dr. Robert Hutchison, the following have for their subject the treatment of diseases in children: acute appendicitis, constipation, family jaundice, tuberculous peritonitis, rheumatism, worms, and splenomegaly.

The whole volume maintains the high standard of its predecessors, and is a most useful reference book for all practitioners of medicine. There are a number of new contributors, whose names add importance and distinction to this well-known and valuable book on the advances made in the treatment of disease. The illustrations are good and none of them superfluous, while the general style of the volume is a great credit to the author and to the publishers.